615

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THE BUSINESS OF KEEPING WELL.*

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An encoré is a compliment that is always gratifying. Having had the privilege of addressing the Virginia State Medical Association four years ago, to be invited to address you on this occasion makes me feel that the Virginia doctors whom I esteem so highly are my real friends. I assure you that I greatly appreciate the honor and it fills my heart with joy to be with you at another one of your annual meetings.

The Virginia State Medical Association is performing a real service to the public in arranging for popular addresses at its annual meetings. There is much that the public needs to know regarding the prevention of chronic diseases, particularly those that impair business efficiency and that shorten the productive period of life. There is also much medical knowledge that the physician fails to apply to himself, so that in my remarks on "The Business of Keeping Well" I hope to appeal to the reason of both the layman and the medical man.

Business Efficiency.

Most men at 60, and some at 50, are forced to retire because they feel that their years of business or professional activity have passed, or they die from the diseases of old age; and, too many women are old at 50 or 60. This should not be true, because any young adult with good heredity, who will apply our present knowledge of personal hygiene, should live to be 90 to 100 years old and should be able to do a full day's work without discomfort up to 80 or 90. If men and women of middle age will learn the accepted rules of health and live by them, likewise they can extend their years of efficiency, and can postpone the infirmities of old age. Any physician who has studied the question of personal hygiene and longevity will agree that these statements are true. It therefore would seem to be good business for every man and woman to give a little thought and some effort to keeping well, and by so doing increase efficiency and add years to the productive period of life.

Success in a business or profession is due to applied skill, energy and endurance. Two of these three qualities most assuredly depend upon health. The care of the human body therefore is the most essential element in success in any line of work. Though Americans are the most successful people in the world, they have yet much to learn about efficiency, and particularly in its relationship to personal hygiene. The criticism of Europeans that "Americans know how to work but do not know how to play" applies to many of us.

The advancement in preventive medicine in the last quarter of a century has brought about an enormous reduction in the death rates of children and young adults, from tuberculosis, typhoid fever, scarlet fever, diphtheria, and other infectious diseases; but against this gain during the same period there has been a considerable increase in the death rate after 50, particularly from the degenerative diseases, i. e., of the brain, heart, kidneys and arteries.

The results accomplished in the decrease of infectious diseases have come from campaigns of education which have taught all classes of the public the important facts regarding the contagious and transmissible diseases. Some of the causes of chronic disease are well known to the physician, and an earnest effort is being made by many leading men in the medical profession to inform the public regarding errors in daily living that decrease efficiency and longevity. These efforts of progressive physicians have proven discouraging at times because men and women are too much interested in the game of life such as law, medicine, politics, housekeeping, society, the rearing of children, and the thousand and one other vocations to realize that they are attempting more than they have the physical strength to accom-

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plish. They have neither time nor inclination for their minds to be diverted into channels of thought about personal hygiene; and only too often they are inclined to regard as cranks those who talk about preventing chronic diseases. The infirmities of old age they accept as "ills that human flesh is heir to" and not of their own making. They cannot be made to see that they may add five, ten, twenty or thirty years to their lives and at the same time be happier and more useful in their respective vocations. They will not learn that the laws of physiology which govern the human body are unchangeable, and that he who transgresses them will find the way hard.

Most men and women violate the laws of Nature because they have not been taught the very first principles of personal hygiene. Schools and colleges have taught the classics and sciences, but have neglected the subject of personal hygiene which is quite as important for the success and happiness of any man or woman. Churches in their combined attacks on alcohol have taught the American people the evils of intemperance as to drink; while many of those who preach against alcohol decrease their own efficiency and shorten their lives by intemperance in eating and by sedentary and unhygienic habits. A wife may upbraid her husband for drinking, and rightly so; yet she herself may injure her usefulness and may be making her husband and children unhappy because of the worry habit that wrecks homes as surely as does alcohol. The worry habit is also one of the causes of failure in business.

Thomas Jefferson is credited with saying: "The present generation is already lost; teach the youth of the country," and as the crowning glory of his life he founded the great University of Virginia. Jefferson was partly right in this statement, because it is difficult to teach men and women who usually have fixed ideas about their habits of living; yet, after practicing medicine for one-third of a century, I think that it is easier to teach adults the rules of health if one can get their attention, because exuberant youth does not feel the necessity for conserving health and vitality; and while children learn easily they do not always reason, and they are prone to forget the serious things of life.

Up to this time physicians have not had opportunity of teaching personal hygiene except to the sick, when often it is too late to be of much value. In the last decade, however, men and women have begun to learn that their success and happiness depend upon right living and that health can be attained only by obeying the laws of health. It, therefore, is the duty of the medical profession to give to the public the facts regarding personal hygiene, that the health and lives of the most useful men and women of this generation may be conserved.

The Penalties of Success.

Some years ago the Medical Director of an "old line" life insurance company told me that the worst classes of risks with which his and other life insurance companies have to deal are the successful business and professional men (including doctors). They are the finest type of men in every community, they enjoy large incomes, and apply for policies of from $50,000.00 up. He said that the age of expectancy of such is low; though they may stand perfect physical examinations, they often die in a few years of some form of the degenerative diseases, i. e., of the heart, arteries, kidneys and brain.

This statement called to mind the observation that I and others had made, while attending clinics in various European cities in 1906, of the large number of widows from 40 to 60 years of age, who were educating their children in Berlin and Vienna, or who were sightseeing or living in England, France, Italy and Switzerland. Their husbands had worked themselves to death accumulating fortunes for their wives and children to enjoy.

I recall a number of successful business men who consulted me for symptoms which they thought of little consequence, but on examination it would be found that they had a rise in blood pressure, with a few casts in their urine, early evidences of arterial degeneration or kidney lesion. They gave no history of any illness or infection that could account for the condition, but they admitted business worries, overwork and long hours. Often they also ate excessively, particularly of meats, smoked immoderately and only too frequently were guilty of over-indulgence in alcohol. They were warned that they were traveling the pace that kills; and while a few learned to live rational lives and were saved, the majority corrected their unhygienic habits for a few days or weeks

only. They were "in the game" of a strenuous life and could not see where they could quit or slow-up, until a stroke of apoplexy, angina pectoris, heart failure, Bright's disease, mental breakdown, or other fatal diseases would develop, when nothing could be done for them.

The mental and physical wrecks that we see every day are not confined to men. Every observant physician knows that the most overworked class of people with whom we have to deal are the mothers and homemakers, who are the first ones in their homes to begin work, and there they remain all day and until late at night, worrying about servants and the "deadly drudgery" of housekeeping, and the care of the children. Another class who break down early are the society women, church workers, and those misguided women who live on excitement. In addition to their social obligations or philanthropic efforts, they have the responsibilities of caring for home and children.

Every physician who has had a large experience in dealing with chronic diseases has been saddened to see many useful men and women die in their prime of tuberculosis, or of heart, kidney and arterial diseases. These human wrecks are gathered from the best and the most useful members of their communities, they are among the educated and the intellectual classes, i. e., college professors, lawyers, statesmen, and the leaders in every line of work.

The women who wear themselves out, as a rule, are of the highest type of culture and graciousness. They are well read in a general way and yet they are woefully ignorant of the first principles of physiological living. Their lives are made miserable and their days shortened from chronic diseases brought on themselves by worry, sedentary habits and long hours at work without recreation, or from morning, afternoon and evening bridge, or other parties which are responsible for many of the "nervous wrecks" among society women.

Lessons from the Lives of Three Great Presidents.

We may learn much about keeping physically fit from the lives of three great Presidents. Roosevelt, Taft and Wilson represent three distinctive types of personality; yet each of them may be considered as a prodigy in efficiency. It happened that a splendid Virginia gentleman, a great "health master", a man whom I am proud to call my devoted friend, Admiral Cary T. Grayson, was at different times the medical advisor of these three great presidents. It may be added that a physician who served with perfect satisfaction three presidents as widely different in temperament and physique as Roosevelt, Taft and Wilson must not only have been a wise and good doctor, but a diplomat of the highest order. Dr. Grayson played tennis with Roosevelt and kept him feeling fit to wield "the big stick" all the time; he rode horseback with Taft, reduced his waist line and kept him smiling; and he played golf with Wilson and increased his weight and physical vigor. There is no doubt but that our Nation owes a debt of gratitude to Admiral Grayson for keeping these three Presidents physically fit and thereby increasing their ability to serve the American people.

The Strenuous Roosevelt.

Every thinking man will agree that Theodore Roosevelt was one of the greatest Americans of all time, and we may learn some splendid lessons in personal hygiene by a study of his life. When Roosevelt was a boy in his teens his parents feared that he had tuberculosis and sent him West. There he lived the open-air life of a cowboy and developed into robust manhood, but for many years he had to be careful about his health to avoid physical disaster.

I cannot discuss in detail the great achievements of Roosevelt, but when he ascended to the Presidency the American people saw an exhibition of such strenuosity and efficiency in office the like of which they had never before seen. Roosevelt was tireless in his efforts to carry out his ideal of making the United States a better place in which to live, and he did accomplish much that made history for himself and for his country. He believed in doing things and his heart's desire was to lead the Nation in an effort to bring about reforms in government in which he believed.

Perhaps the great defect in Roosevelt's life was in his lack of a sense of humor. He took everything in life too seriously. He never had a real vacation after he came back from the West. Even his hunting trips were strenuous and he spent every moment when he was not in action in reading and writing. In his anxiety to make the world better he gave too much of himself towards the accomplishment of that ideal. Roosevelt led a full, efficient life

but he died many years before he would have had he lived a little less strenuously, because with his splendid physique he should have been active until he was 80 or 90 years of age.

Perhaps one of the reasons for Roosevelt's death at 63, when he should have been in the prime of his life, was the fact that he took on weight after 50, which, according to observations of life insurance officials is a hazardous handicap for any man or woman.

Roosevelt did not dream of the penalty he would have to pay in leading the strenuous life; but think of what America lost by his untimely death. Roosevelt was the recognized head of the majority party when he died, and no doubt had he been alive he would have been President of the United States at a time when his leadership would have meant so much to the world.

Roosevelt's example and high ideals should be an inspiration to the youth of this and future generations; but the overworked man may well pause and consider the dangers of the strenuous life. Certainly the average person would shorten his days and actually defeat his purpose in life by attempting the physical and mental achievements of the "rough rider" President.

The Serene Taft.

We may profit also by studying the personal habits of another great President, the serene and complacent William Howard Taft. Mr. Taft went into the White House handicapped by more than one hundred pounds overweight, and every student of longevity knows that obesity shortens life more than any other cause. The probabilities are that if Mr. Taft had not followed the advice of his physician, Dr. Grayson, and reduced his flesh slowly and intelligently, his administration would have been less successful, and years before this he would have paid the penalty of indiscretion in eating.

Perhaps one of the reasons why the years of arduous effort and great responsibility have not destroyed the health and life of Mr. Taft has been his fine sense of humor. The Taft "chuckle" and his contagious laughter have brought delight to every person who has ever come in contact with him; and his evident love for his fellowman has made every one his friend. Mr. Taft's wisdom, statesmanship and judicial temperament make him at 75 the most revered man in public life today.

Mr. Taft is a notable example of one who profited by the advice of his physicians, and any man or woman who is overweight may do likewise; and every man and every woman of any age or weight would do well to cultivate serenity which is one of the attributes of success and longevity.

The Intense Wilson.

In my opinion the greatest example of human efficiency in the history of the world was the first seven years of the administration of our great War President, Woodrow Wilson. From observations of his life when he was Governor of New Jersey and extending through the years of his marvelous achievements as President of the United States to his physical breakdown, we may study with profit the personal habits of one who by following the laws of hygiene added much to his efficiency, but by disregarding the dangers of deadly fatigue broke down his health at a time when he was the dominant figure in the whole world.

I first saw Woodrow Wilson in 1911 as Governor of New Jersey, then 52 years of age. He was delivering an address of welcome to five thousand doctors assembled in Atlantic City at a meeting of the American Medical Association. It was the most marvelous piece of reasoning eloquence, without any effort at flowery oratory, that the assembled doctors had ever heard; but we feared that he would not have the physical strength to live through even one term as President of the United States. The impression that Woodrow Wilson was not a strong man physically was later confirmed by information obtained from friends who knew him at Princeton and also from confidential conversations with his physician, Admiral Grayson.

I had the privilege of an interview with President Wilson about a year after he had been in the White House. He had gained 15 or 20 pounds in weight, he had the look of rugged health and he was bubbling over with mirth, a sure sign of physical strength and vitality. I opened the conversation by congratulating President Wilson on his good fortune in the selection of his physician; and said to him, "Mr. President, I hope you will use Dr. Grayson as a 'health master' to keep well rather than wait until you are sick to consult him." President Wilson laughed and said, "I have found that it pays to follow Dr. Grayson's

advice and I am trying to obey all his instructions regarding my health. Before coming to the White House I was very susceptible to colds. Dr. Grayson advised me to go to bed on the first appearance of a cold and I found that 24 hours in bed usually relieved me. It happened on one occasion that I could not follow Dr. Grayson's advice about going to bed, but later found that I had to lay up for several days because I did not follow my physician's instructions." I may add in passing that Dr. Grayson's advice to rest in bed for a day at the beginning of a cold is a better remedy than all the medicines in the drug stores that have been prescribed for colds.

Knowing that the President had been far from a well man when he was Governor of New Jersey, and that at the time he was elected President he was under the care of a celebrated gastro-eterologist in New York, I said to Dr. Grayson, "What have you done to President Wilson that so improved his health and that has made him physically fit for his arduous duties as President?" Dr. Grayson said that when President Wilson came to the White House he showed evidences of years of overwork and insufficient sleep and that he was suffering from indigestion. He was very susceptible to colds and for years had suffered from periodic headaches which physicians know often precede and may be an early expression of chronic Bright's disease. Dr. Grayson said that he had been able to persuade President Wilson that if he would enjoy good health and not break down from the arduous duties of the presidency, he must follow the simple laws of hygiene.

The daily routine advised by Dr. Grayson and which President Wilson followed during the years of his marvelous achievements, would add to the health and efficiency of any other man. It was as follows:

1. Nine hours' rest in bed at night.
2. A few minutes' physical setting-up exercise before the morning bath.
3. A carefully regulated diet, eliminating cane sugar and its products entirely.
4. One hour rest period at noon.
5. Not more than eight hours' work a day.
6. A walk or ride in the open air and sunlight every day.
7. Golf two or three afternoons a week.

President Wilson lived the perfect hygienic life in spite of the demands of his duties as president during the World War and remained in splendid physical condition until his second trip to Paris to the Peace Conference, when he did not take time for rest, golf, or other recreation; and for the first time failed to follow the advice of Dr. Grayson. No doubt as a result of fatigue he had a serious attack of "flu" a few weeks after his return to Paris and he did not give himself time to recuperate before he was again at the Peace Conference. Even after his return to the United States if he had followed Dr. Grayson's advice and had not made the long Western trip, which was the immediate cause of his death, he probably would have been living today.

I am sure that had President Wilson not been a victim to illness, the direct result of overwork, he would have accepted the Senate amendments to the Paris peace pact, the United States would have done her duty by her Allies and would have become a member of the League of Nations; and I am one of those optimists who believe that, had not Woodrow Wilson forgotten himself in his zeal to serve mankind, world peace for all time would have been established.

Food and Efficiency.

"We dig our graves with our teeth" is a trite saying that seems figuratively true when we study the eating habits of 95 out of every 100 adult Americans. Go into any cafe, quick lunch place, hotel or dining-car, or go into the homes of all classes, and watch the "grave diggers" hurriedly devour large quantities of lean meats and white bread, and sweets of all descriptions three times a day, without a thought of their vitamin content and of the amount of proteins, carbohydrates and fats needed to maintain normal nutrition. See them swill sugar saturated coffee and tea which contains a harmful habit-forming drug, caffein, with each meal; and see them flock into soft-drink stands, candy shops, at all hours of the day and night, and you will find that the average person, if he knew anything of food values and the nutritional needs of the body, could live on less than half the amount he now spends for food and drink and be healthier and more efficient; not to mention the fact that he would live years longer on a rational well balanced diet. Does it not seem that it would be good business for any man or woman to learn the

simple principles regarding diet and nutrition?

Some twenty years ago, Alfred McCann wrote a series of articles for the *New York Tribune*, and later a book on "Starving America", in which he called attention to the fact that largely for commercial reasons we are living on "devitalized" foods, i. e., white flour bread, pies, cakes, white rice, bolted cornmeal, rolled oats and other commercial breakfast foods; white sugar and its various products, candy, ice cream, and soft drinks; corn and cane syrup; oleomargarine butter; coffee and tea; and cold storage meats, pork and beef particularly. Though a layman, McCann was one of the pioneers in bringing to the attention of the public the serious consequences of our changed eating habits in the last seventy-five years; and he urged the American people to go back to the diet of our fathers and grandfathers who lived on whole wheat flour, whole grain cornmeal, whole grain rice, whole grain oatmeal, pure butter, honey, maple sugar, brown sugar and very little of that, eggs and chickens, home-raised and home-grown meats, and plenty of fruits and vegetables. Recent studies in nutrition have proved that McCann was right in his contention that though most Americans eat too much they are not properly nourished, and are actually starving while their stomachs are full of devitaminized foods.

Among the most remarkable discoveries of this scientific age are those that have been made in nutritional laboratories, proving the existence of protective substances, vitamins, in food. A deficiency of vitamins in food will impair health and shorten life as certainly as two and two make four. It, therefore, is worth while for a man or woman who would be efficient and who would add a few and perhaps many years to the productive period of life to learn the facts regarding the vitamins.

It is simple and easy to live on a well balanced diet, one in which the three daily meals are rich in all of the vitamins. Indeed one does not realize the joy of living until he knows the reasons why the most palatable foods known to man are those which when eaten intelligently will give him a clear head and a sound body.

McCollum's dictum of a perfect nutritional day should be followed by those who would enjoy health and efficiency. It is as follows: Every adult should have from a pint to a quart of milk, one raw fruit, one raw vegetable and two green vegetables a day. In addition to this, he should have a sufficient amount of meats, breads, potatoes, and other starches, proteins and fats to maintain his normal body weight.

Excessive eating surely shortens life and decreases efficiency. Fat and laziness are supposed to go together. Unquestionably a person who is overweight is not apt to be so mentally and physically alert as the person of average weight. Life insurance companies are in business for the purpose of making money out of their policy-holders and they will not insure a man 40 per cent overweight, and the person who is 20 per cent overweight is put in a special class, because statistics show that the obese person dies years before his age of expectancy. Overweight after 50 is a serious condition.

Likewise, a person who is underweight has not the physical strength and mental endurance of one who is well nourished. Underweight before 40 renders one susceptible to tuberculosis and nervous and mental diseases; while overweight after 40 is a serious condition because it predisposes to diabetes, brain disease, heart and arterial diseases. The important thing, therefore, is to find the normal weight and learn to eat food that will keep one in the best physical condition.

Modern mothers employ specialists in diseases of children to direct the feeding of babies because they have learned that by so doing they may prevent colitis and other digestive diseases of childhood. It would be equally wise for men and women of all ages to be examined once or twice a year by experts in nutrition, who after a thorough study of the individual, including his mental and physical habits, is prepared to advise a diet and a system or regimen of hygienic living that would add many years to his happiness and efficiency.

Exercise and Business Efficiency.

Efficiency and success in any undertaking may be measured by physical fitness. A person with flabby muscles is lacking in initiative and has not the physical endurance to accomplish his daily task. Mental alertness is usually associated with physical agility. The law that activity means life and prolonged rest decay, applies to the bodies of human beings as it does to everything in Nature. Use develops muscle

while non-use results in atrophy. Regular systematic exercise with the idea of bringing into play every important group of muscles and every joint and ligament in the body should be as much a part of the daily routine of life as three meals a day.

When it is considered that one-third of the blood of the body when at rest is in the muscles and two-thirds in the internal organs, while during physical exercise two-thirds of the blood is in the muscles, it can be readily understood that, if one does not take exercise, the internal organs will suffer from passive congestion and the muscles will atrophy and become stiff and painful from receiving too little blood. There can be no question but that this lack of exercise is one of the causes of pains in the back, muscles and joints of people past middle life, the so-called infirmities of old age. Daily exercise not only increases efficiency for the day it is taken, but postpones senility by keeping the arteries resilient.

Golf is the most wonderful game in the world for both men and women over thirty. It puts into play every muscle in the body without being too violent an exercise. It is played out in the open air and in the sunlight. It takes time to play it and gives one more recreation. It gives a change of mental activity that brings health, happiness and even prosperity to its devotees. Golf has lengthened the lives and added to the joy of living of many thousands of Americans. There is no more healthful sign of the times nor better evidence of the increasing efficiency of the American people than the multiplying golf links throughout the country.

Comparatively few people can play golf, however, but every one can walk for a mile or two in the open air, or sunlight every day. But whether one can play golf or not, he should take from ten to fifteen minutes of one of the very good systems of exercises before the morning bath every day.

The Toxins and Business Efficiency.

The toxins, alcohol, caffein and nicotine, will unquestionably impair business efficiency, directly in proportion to the amount consumed. Life insurance companies have learned from sad experience that the man who indulges in alcohol to excess for many years is short lived, and not one will insure the life of a man who has the reputation of being a heavy drinker. It is difficult to be temperate in the use of alcohol, and since intemperance surely shortens life and impairs efficiency, the man or woman who desires to be most efficient should not use alcohol in any form. A successful man once said to me that he made it a rule never to touch alcohol in any form when he had anything to do; and since he had learned that he could not drink at night and be efficient the next day, he never drank in his home city. He also said that he had learned that he enjoyed his vacations more when he did not drink, so that he became a total abstainer.

One cup of coffee at breakfast may not do a great deal of harm, though it contains caffein, a habit forming drug. It increases efficiency temporarily, but as the effect of the drug dies down about noon, unless one takes another cup of coffee, the curve of efficiency is low for the rest of the day. The excessive use of coffee, tea and the caffein soft drink beverages will surely in the course of time produce inefficiency and even ill health. I have seen many cases of heart, arterial and kidney disease of the type associated with high blood pressure in which the cause seemed to have been the excessive use of coffee, tea and the soft drinks containing caffein.

Undoubtedly, the excessive use of tobacco is the cause of much inefficiency. This will be denied by those who use tobacco regularly, because it is a strange trick of Nature that one cannot realize that the particular thing he is doing can be harmful. But it may be said that tobacco impairs efficiency directly in proportion to the amount consumed; and since it is difficult for any man or woman to remain temperate in the use of tobacco, if he cares for efficiency, when he learns the truth about tobacco he will cut out this useless and expensive habit.

The use of tobacco among women has increased to such an extent that it may be well to mention the fact that because of their more delicate and more sensitive nervous systems, women acquire the various drug habits more readily than men, and physicians who study cause and effect are observing the harmful effects of tobacco on many lovely women. Women have as much legal right to smoke as men, but from a mental and physical viewpoint, for the sake of their children or the children which they hope to have, women should not use tobacco.

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The Care of the Human Engine.

It is strange that men pay so little attention to the human engine, which must have the proper fuel to generate energy for its work; and every part of which must be kept running smoothly, or it cannot carry its load. The locomotive engineer inspects each essential part of his engine every day before it starts on its journey, and every few weeks or months it is given a thorough overhauling. This is done to prevent breakdowns on the road, and to prolong the life of the engine.

The man who owns a fine automobile sends it to the mechanician once every month or two for inspection and once or twice a year he sends it into the shop for general repairs. Yet the engine upon which depends a man's success in business, and even his life, goes without thought of preventing trouble, with a load that overtaxes its power from year to year until finally it is wrecked and the load consisting of business and family affairs is thrown into the ditch.

There is no doubt but that many of the mental and physical wrecks that we see about us every day could have been prevented if men had looked after their bodies with the same care that an engineer looks after his engine. One must first learn the physiological functions of every part of the body, as the engineer has to serve an apprenticeship to know the workings of every piece of machinery in his engine; and after man learns his physical needs he must make up his mind to give up a small part of his time each day for the care of the human engine which, when worn out cannot be replaced and which has a far greater value than the iron and steel machine that hauls a railroad train. For, after all, there would be no iron or steel machine without the human machine that has created it. And of what use are the machines or works that man creates, unless we learn how to preserve our human machine so that we may lengthen our days to enjoy our handiwork!

It would be good business for every adult to employ the best physician available to examine him regularly and direct him regarding his habits of eating, work, rest and play that he may prevent or postpone the diseases that disable or cut off the lives of men and women during their most productive years.

Industrial leaders are applying that principle to their laborers who undergo a thorough physical examination before they are employed and annually while they are on the pay roll. However, the officials of great industries, and business men generally, send for the doctor only when they are sick, and often when it is too late for relief. A notable exception to this rule is Mr. Vauclain, President of the Baldwin Locomotive Works, who pays a Philadelphia physician ten thousand dollars a year to keep him in health. The example of Mr. Vauclain in paying a physician well for his services in keeping him physically fit for work is one that may be followed with profit by others.

The Annual Physical Examination.

Successful men pay thousands of dollars every year for life insurance to protect their families in case of continued illness or death, and insurance is surely a good business investment. The best insurance, however, against sickness and death is a thorough physical examination by a competent physician once or twice a year. This examination should be a very thorough one, including a study of the functions of every organ of the body and a survey of the habits of work, recreation, eating and everything in the life of the individual including mental habits that could affect health or efficiency. After a thorough examination the physician should then give his patron written instructions regarding the daily regimen including work, rest and play, that would prevent disease in that particular individual. It is time well spent for the busy man to see his physician perhaps once a month and discuss with him the things that he needs to know to prevent disease.

There is no question but that incipient tuberculosis is curable and that diseases of the brain, heart, kidneys, arteries and of the digestive organs may be stopped if discovered in time. Physicians know that usually such diseases have existed for months or years before the breakdown comes, and often the physician is consulted when it is too late to remedy the damage that has resulted from living an unhygienic life. The old saying that "an ounce of prevention is worth a pound of cure" should have a corollary to the effect that one day's treatment of disease in its incipiency, which may be found at the annual or semi-annual physical examination, is worth months of treat-

ment in a hospital after the disorder has become well established.

A System of Hygienic Living.

It may be well to outline the perfect hygienic day for business and professional men, and all classes of men and women.

1. *Sleep.* Eight to nine hours in bed at night, and a siesta of one-half hour after the noon meal if it can be arranged.

2. *Exercise.* Fifteen minutes' room exercise with windows wide open, preceding the morning bath. Daily ride or walk of one hour per day, or golf two or three afternoons a week.

3. *Work.* Six to eight hours in the office five days per week; three or four hours on Saturday morning.

4. *Serenity.* Worry, anger, fear and other emotions wear more than work; and one should cultivate serenity in all the relations of life.

5. *Recreation.* Dismiss business or household cares after six o'clock in the evenings, and rest the mind after the evening meal by light reading, or by playing some game, or going to the movies or to the theatre. For a man after 40 no constructive work after the evening meal. Frequent week-end trips and a vacation of from two weeks to a month a year are conducive to business efficiency.

6. *Diet.* A sufficient amount, not too much, nor too little, of simple wholesome food each day, including one raw fruit, one raw vegetable, two cooked green vegetables, one quart of milk, and not more than one small portion of meat once a day, and one light dessert.

7. *Elimination of toxins.* Coffee, tea and soft drink beverages containing caffein are unnecessary if one has eight hours' sleep at night and their excessive use is quite harmful. Tobacco and alcohol are harmful in any quanity, and if used at all they should be in moderation.

If one would be efficient and experience the joys of living, he should be regular and systematic in his daily regimen and he must have a worthy purpose in life. The man who keeps himself in perfect physical condition is usually the most successful one; but if he should become so occupied in his efforts to accomplish his purposes, whether in politics, business or professional life that he has no time to follow the simple rules of personal hygiene, he will pay the penalty. It surely is good business to keep well.

2234 *Highland Avenue.*

SOME PATHOLOGICAL OBSERVATIONS ON THE INCIDENCE OF TUBERCULOSIS AND OF CANCER IN FIVE HUNDRED AUTOPSIES.*

By CHARLES PHILLIPS, M. D., Richmond, Va.
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Last spring when the "Early Diagnosis Campaign," was on in Richmond, the question arose many times among the speakers and clinicians as to just what is the incidence of tuberculosis in a city like Richmond. Investigation of sources where that information might be had reveals that apparently it has never been worked out in our State. Critical examination of the term incidence, necessitates division of the results into one group of what might be called "clinical discoverable" on one hand, and "post-mortem incidence" on the other, for it is obvious that the two methods are dissimilar and lead to different rates. Public health workers might introduce a third element into the discussion, and rightfully so, by calling us to remember that for each death from tuberculosis there are from 10 to 18 "potential cases." These belong usually to the clinical group.

The writer, having become interested in the actual percentage of our people suffering from this disease, thought it interesting to analyse a series of autopsies running over the past eight years and see what the incidence of tuberculosis is there. Accordingly, a group of 507 post-mortem examinations on persons from six months of age and upward have been analysed simply. This group includes work by experienced pathologists and coroners and in most instances the tissues have been subjected to microscopic examination. In a city the size of Richmond and where the service of the Medical College of Virginia covers city patients, it will be manifest that a high percentage of autopsies will be coroner's cases, meaning, from the viewpoint of this analysis, that the chance of detecting tuberculosis by complete examination of the body is lowered. Similarly, in this time the increasing use of automobiles has increased the accident rate, so that the series of 500 includes many partial examinations, such as the head. Again, the College service includes negro patients, and the incidence of deaths from cutting and shooting is unfortunately large and well known. This statistical

*Read before the fifty-ninth annual meeting of the Medical Society of Virginia, at Danville, Va., October 16-18, 1928.

study, while interesting, probably will not be so valuable because of these facts.

The autopsies reveal both tuberculosis that is a primary cause of death and an incidental disease. Out of the series there were only 63 times in which tuberculosis was found in any form, giving a percentage of 12.3. A complete examination of the body was permitted only 49 times or on about 10 per cent of the whole, but this revealed only 26.5 per cent tuberculosis. Complete autopsies on adults gave 24.4 per cent tuberculosis, most of this being pulmonary, and much of it incidental, such as healed apical lesions. The profession in this country has believed for years that complete post-mortem examination of the bodies of nearly all adults would reveal tuberculosis in some form. Our results are on too small a series from which to generalize, but they show that less than one-fourth of adults in Richmond coming to our routine complete autopsy have tuberculosis, and the group is possibly a fair but small cross-section of the city population. The writer draws no conclusions from so small a number of complete autopsies, but it is interesting to note how low is the rate when studied.

Cancer in this study is simply defined as any malignant tumor and, although we have classified all these growths, there are really only four divisions, carcinoma, sarcoma, glioma and malignant endothelioma. We recognize the difference in types of glioma, but since all these cases were deaths from them, no further classification is included here. Out of the 507 post-mortem examinations, cancer was found 44 times, or in 8.6 per cent of the whole. Of these, 22 were brain tumors, twenty carcinomas and two sarcomas. This high rate of one-half of brain tumors is due primarily to the clinic of neurological surgery at our college hospitals, and it is not our contention that the same rate holds in our general population. Carcinomas were of uterus, stomach and intestinal tract chiefly, but there was a sprinkling of involvement of other organs. Cancer in our series has occurred largely in adult years, although there have been brain tumors as well as other fatal neoplasms in persons below twenty.

Resume.

A statistical study of 507 autopsies has been made on cases in Richmond from six months of age and upward and observations made on the incidence of tuberculosis and cancer.

It is shown that, of the total, 12.3 per cent had tuberculosis in some form; that the incidence among those bodies on whom complete permission was obtained was 26.5 per cent; that the incidence among adults with complete permission was 24.4 per cent. While the number of bodies completely examined was small, those whose abdomen and chest was opened was very large, actually giving us opportunity to study closely the site of the commonest lesions.

Clinicians and public health workers estimate a rather large incidence of tuberculosis in Virginia, but this brief study of autopsies does not confirm this. In studying the incidence of this disease, we ought to divide cases into two groups, "clinical discoverable" and "post-mortem." A more thorough and prolonged study of this problem is desirable.

The incidence of cancer among 507 autopsies was found to be 8.6 per cent, with the neoplasms occurring in the usual sites. One-half of this group were brain tumors, this large incidence probably being due to the neurological clinic which was well established in our college hospitals.

The medical profession needs more autopsy studies but can only get them by increasing its own interest in the problem and helping to educate the public. A well worded statement along this line from our State Medical Society might help.

NUTRITION AND HEALTH AMONG SCHOOL CHILDREN.*

By W. P. JACKSON, M. D., Roanoke, Va.

This, though a much discussed question of the day, still deserves, I believe, enough thought to be considered for a few moments by us. Historically, for want of time, we shall mention only one or two steps in the development of child health programs.

In 1870, through the enforced school attendance act, England brought together so many emaciated and sickly children who would otherwise have remained hidden in the slums that there was immediately felt the necessity for some plan to correct those conditions. In 1899, through conscription for the Boer War, England again had her attention called forcefully to the large number of physically unfit young

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men. In the World War, America found 47 per cent of her recruits defective, and 21 per cent were rejected as unfit for service, while 26.5 per thousand were rejected because of underweight. According to the Government standards of examination, it is claimed by the Department of Interior that, if our present knowledge could be put into practice, the percentage of defectives reaching military age would be reduced by 50 per cent. For the school year ending June 1, 1927, about 16 per cent of children in the cities of Virginia were underweight and 21 per cent of children in the counties were underweight, 10 per cent or more. This, however, is a reversal of the usual condition which shows a greater proportion of underweights in the cities. Nevertheless, the general average is approximately that of the country at large. In June, 1927, according to the report of the Eighth Annual Physical Inspection of School Children for Virginia, there were only 30 per cent without defects. On June 1, 1928, the percentage without defects was 27 and the increase in the number inspected was 30,269. In 1927 there were 68,916 corrections, and in 1928 there were 80,498 corrections.

Education has been defined as meaning, first, health, maintaining of health and keeping well; second, practical efficiency, using the tools and conventions of civilized life and the technique of a vocation; third, citizenship, cooperation in the regulative processes of social control and civic and social enterprises; fourth, recreation, using leisure time for enjoyment and enrichment of the higher life. Health, we see, then, from this definition stands first. We all know that where great Commonwealths are concerned, progress, such as the development of an active, efficient, well executed program of putting into effect well proven knowledge, is very slow. For example, we say our country is at least 20 years behind in carrying out the very principles of health that we all know are proven beyond question and should be operative today.

Various plans have been tried and with varying success. That adopted by Cleveland, Ohio, is considered especially good, being a result of actual experience as they have worked it out there. In the foreword of the Health Program for a Junior High School, they call attention, first, that health is now commonly listed as the first of the objectives of general education. They remind us also of the great waste of our time in economic and social loss due to preventable illness and early death. They say "There is no doubt concerning the value of health promotion and disease prevention and as a result life expectancy has been increased 30 per cent in the last century. The gains already made have been largely through sanitary engineering and improved medical treatment of disease. The main hope in the futue rests upon better education of the individuals in the care of their own health and of the Commonwealth." As they express it, "One's health is affected not by what one knows but by what one does. The new education concerns itself not only with knowledge and skill but directs attention to the formation of habits, attitudes, and traits of character likely to control action in ways both useful to the individual and to society." In the nine objectives of theirs for a health program, there are three which I want to mention in connection with the thought which I wish to convey in these few moments: First, to develop or maintain specific health habits; second, to develop health knowledge; and, third, to develop the proper attitude toward health, health practices, and life situations. No plan in health education is going to be successful without the hearty cooperation of those taking part in it.

All apparently are in accord in feeling strongly that every child should have a thorough health examination by a competent physician, at least at the beginning of his school career, and repeated later at varying intervals of time. Such an examination is expected to be a thorough one, not only for the sake of finding defects when present but very largely to give that child and that child's mother, who should be present at the examination, an impression as to the importance of the procedure. Some communities employ full time physicians who are especially interested in that type of preventive medicine. Others employ part time physicians, and still others depend upon the family physicians. Advantages and objections can be offered to all three. For the first one, such salaried appointments are not commensurate with the value of the man. That condition should not be, but it is. Again, those patients under such a system will be to a large extent taken out of the hands of the rightful physicians, thus a step toward State medicine. To the second plan, the objection may be raised that the part time physicians are, as a rule, not

interested in this work. As a result, rapid, superficial inspections are made rather than thorough health examinations, and thus in a great measure is lost the opportunity to instil those very principles of health education as mentioned a few moments ago. The objection to the family physician has been raised that well qualified physicians may examine large numbers of children and find very few defects. For example, Phair reports that in Ontario, in the sections that depended on the family physicians, the percentage of defects found was very low and some physicians would examine as many as 40 children without finding a defect and hundreds were examined and only 0.2 per cent marked as being definitely below average nutrition.

Virginia's plan is to have these examinations made by the family physicians, and theoretically that plan is sound, if we are qualified to make the examinations. It remains for us to make it a success or failure. It gives us the opportunity to bind more closely than ever that sacred tie of family physician and patient. They do not call on us to make these examinations gratis; therefore, it is not a question of putting more charitable burdens on the already over-loaded. It is true that some will appear who are carried on our charity list but, to offset that, those who are able to pay and need further medical attention are expected to return to the family physician while he gets them into the proper physical condition for economic use of opportunities offered in the educational system.

It is evident that here we have a great opportunity. It is true that the school may offer, and very profitably, courses in nutrition, and as long as we have the high degree of malnutrition that now exists in the country, I want to endorse such courses as strongly as possible. But is not the presence of this high degree of malnutrition in the country largely a question for the family physician to meet? A survey by the Department of Interior reports that 90 per cent of the school children in this country, according to the condition of their teeth, had at some time in their career been badly fed, even though they at the time of examination may have been well nourished. Immediately, we see, then, that the fundamentals of nutrition must be applied to that child long before he has access to courses in nutrition. Yet, when we are brought in contact with these under-nourished children, we still have a great opportunity to practice preventive medicine. To illustrate, let us take up the problem of malnutrition.

Last year, with the assistance of the one school nurse in the city of Roanoke, we had 18 children of the most seriously under-weight she could find brought to the office for a study, especially of their health habits. Chief among those health habits were the consumption of a liberal supply of candy and sweets between meals, starchy foods in abundance, coffee, almost no milk, eggs very sparingly, with very little fruit or green vegetables, and no mid day rest period. They were the typical emaciated, anemic, drooped, tired looking, highly nervous children, as seen among such a group. Some of them had considerable trouble with discipline in school, for which they were kept in after school hours during the little remaining time of daylight left for them. Some of the parents came with the children and those whose parents came usually gave the best results. We had a few defects corrected where we could get them corrected, but our main emphasis lay simply on trying to get those children, age average 11 years, to adopt good health habits. We had considerable difficulty in getting proper cooperation from several of them, especially those whose parents we never saw, but others tried hard to carry out our simple rules as laid down, which may be expressed in a few words, namely, the daily liberal consumption of protective foods, fruits, leafy vegetables and milk, take a mid-day rest period with plenty of sleep at night and as much sunshine as they could get in, and good health habits in general. Over an average of 13 weeks per child, they gained 1½ times the normal gain for that period. This was a group which was considerably behind the average. Some naturally cooperated more and gained more. The greatest gain was 15¼ lbs. over a period of 16 weeks. This was a very feeble effort and was done merely to see for ourselves the possibility of an extensive program of that sort and to interest others in the subject. One who puts a little study into it and gets a glimpse of its possibilities cannot but be impressed with the contrast of the type I just described with the fresh, bright, happy, rosy cheeked youth, who comes in, weighs himself or herself, and sees the gain and gladly tells how much better he or she feels. The school

work is no longer so hard and the teacher is not so cross with them.

The nutrition worker in the school who sees these under-weight children and gets interested in them also has a wonderful opportunity. One of the local teachers, Miss Nancy Dixon, who for about two years has been much interested in this work, has really performed an excellent piece of work. She adopted the same method in general but was able to work more intensively with them by having them in classes in hygiene and in nutrition. In one group there were 109 pupils, 10 per cent or more underweight. In three months those children gained on an average of 2-2/3 lbs. per month. The normal for that time and age is 12 oz. a month. Among another group of 98 pupils, 10 per cent or more under-weight, 41 were brought up to normal in three months. Fifty-two girls gained on the average of 1-2/3 lbs. a month and forty-two boys gained on an average of 2-1/3 lbs. a month. Among 245 pupils in the spring term of 1928, she increased the "Five Pointers" from 54 to 102, largely by bringing them up to their normal weight. These are mentioned to show what can be done in a school, but, as I see it, our job is to prevent as nearly as we can that high percentage of under-weights reaching the school in such condition. When it comes to a final analysis, what form of education for these children can be more valuable to them than to teach them and their mothers to take proper care of them, help them to preserve their health and make useful citizens of them? As stated elsewhere, our State proposes that the family physicians examine these children, and it expects those physicians to be paid for their services. If we do not meet this situation, then the State is left with the obligation and duty to employ physicians to properly take care of the work. I sometimes wonder if we realize how hard the State Board of Health tries in every way possible to get these people to consult us as their family physicians.

The expenses for the conduct of such a program must naturally be considered. The analysis of money expenditures for medical work for school children and other conservation of child life, as obtained by the Department of Commerce in 1925, shows that the cities of 30,000 and over in Virginia spent $.15 per capita. A few other reports taken at random for comparison show that Connecticut spent $.34; Iowa, $.18; Michigan, $.32 and North Carolina, $.22. Among the cities of Virginia, Richmond was at the top with $.20 and Roanoke at the bottom with $.06. Winston-Salem, N. C., spent $.36. We can not argue that we are not financially able to spend more when we compare ourselves with others. The per capita wealth for Virginia was, according to the Estimated National Wealth in 1922, by the Department of Commerce, $2,050, and, among the group just chosen, Connecticut, $3,614; Iowa, $4,274; Michigan, $2,989, and North Carolina, $1,703. There is no argument against the value of such expenditures. This has been proven beyond a doubt. The Metropolitan Life Insurance Company, by expending $60,000 for medical examinations of 6,000 people within six years, saved through premiums for people whose lives were extended $120,000, a 100 per cent investment for themselves to say nothing of the benefits received by those examined from the education offered by such examinations. In 1921, 87,000 Chicago school children failed to pass examinations because of loss of time, 80 per cent of which was due to tooth trouble, a preventable condition. The cost of repeating was estimated at $1,100,000.

In answer to the question to the State Department of Health: "How many nurses would you employ additional if you had the means?", they replied: "Sixty." They say there are still 48 counties with no nurses. The other twelve are needed as additional nurses. A fleeting glance of the work that these nurses do is sufficient to convince any one as to their value. Last year these nurses held 300 health conferences. One thousand six hundred mothers were instructed in prenatal care. Over 1,400 girls were instructed in care of infants and children. Over 76,000 immunizations were done with the assistance of these nurses. One hundred and eighteen thousand, five hundred and seventy-six home visits were made for instructive health education. The money needed for this enlarged program is $35,000. That amount, divided by the population of Virginia, requires a per capita tax of $.015. Certainly we can stand that, particularly if we consider from Dublin's calculations that every person thus saved and reared to 18 years, if the peak of his earning capacity is only $2,500 a year, his economic value is $28,645 at that age.

The object of this discussion, which covers such a large and important field and so superficially in these brief moments, is that we may,

XUM

first, in seeing its importance, try to impress the public as to the value of a healthy well nourished child; second, acquaint our legislators with the great wisdom of appropriate expenditures for this service to children of both pre-school and school ages; third, use our utmost efforts in the handling of these little patients to prevent such a large per cent of underweights and defects; fourth, cooperate to the fullest extent with the State Health Department in improving the health and physical fitness of our future citizens.

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515 *Mountain Trust Building.*

HIPPOCRATES THE MODERN PHYSICIAN.*

By ROY K. FLANNAGAN, M. D., Richmond, Va.

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THE MODERN SPIRIT.

There is a confusion of tongues in this age, and doubts are expressed about every phase of science, philosophy, religion, ethics and history, and every postulate and belief that for centuries have gone unchallenged are searchingly examined by an incredulous, enquiring, irreverent generation. The medical profession whose history stretches back through the dim vistas of an honorable antiquity and whose official spokesmen have never wavered in their adherence to the essential principles inculcated by its revered father and founder, Hippocrates, has not remained untouched by this modern questioning spirit. We should not cavil at this, for a thing is not good just because it is old, and tradition has encircled it with a halo, for it is often true that the object honored because of its age is but a corrupted substitute for the thing that it purported to be. Things well grounded and proven though ancient should, of course, be cherished, but the unscientific, the out-worn and ill-adapted should with little ceremony be cast aside.

It is well, therefore, that we as individuals and as an organized profession occasionally examine ourselves, our history, our principles and our practices to see if a critical inspection may not show a straying from first principles and whether or not certain interpretations and time-honored practices growing out of them, and which have been thought all but immutable, do not require revamping.

When changes are desirable or necessary in any department of human endeavor, adjustments should be effected if possible, from within, for otherwise there is always danger of an upheaval and revolutionary changes, perhaps for the worse, by influences operating both from within and from without.

OUR DANGERS.

With many evidences of a tendency toward a break-down of standards within the profession at large, and with many blatant enemies without having no regard for these standards, we may be sure that if we within the charmed circle of the ethical fraternity do not examine carefully our vulnerable points, readjust our thinking where necessary, and our actions to accord therewith, others less wise, less socially-minded and more mercenary, with no regard for precedent or principle by very force of numbers may take charge. In that event we can then look with assurance for a tearing down of much of the sacred structure which honor, honest devotion to science and regard for human welfare have built up through the centuries. We are to be congratulated that there appears to be little danger of such a thing happening soon to us in Virginia, but signs here and there of ethical disintegration are not wanting. We need, therefore, to be on the alert lest a self-satisfied inaction put us in the hands of the enemy.

Mindful of these things, it has seemed to me to be worthwhile to hark back to the beginning of medical history and clarify, if possible, the meaning of some of the record so

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far as that record may apply to present-day conditions, and see if the father of medicine may not have a lesson or two for us in this connection.

Ancient Medicine.

The great Hippocrates whose works give us our oldest medical record gave in that record the chart by which we ostensibly steer our ethical course today, i. e., "The Law of Medicine and the Hippocratic Oath." These documents will repay a much more careful study of their principles than is usually given.

In reviewing the record it is startling to note how history repeats itself, and how vividly "modern" this great prophet of our faith was in his point of view. The strictures he makes on some of his confreres and the implications of many of his observations are most pertinent and searching. Severe as they are at times upon some of us, it will perhaps do our souls good to examine them and, where they are applicable to any one of us, take them to heart.

Quotations.

In "The Law" Hippocrates characterized the "Art of Medicine" during his time thus: "Medicine is of all arts the most noble, but owing to the ignorance of many who practice it, and of those who inconsiderately form a judgment from them, it is at present behind the other arts. There is apparently no punishment connected with the practice of medicine, but disgrace, and disgrace does not hurt those who are familiar with it."

In the first "Aphorisim" he states that "Life is short and the Art long, the occasion fleeting, experience fallacious and judgment difficult. The physician must not only be prepared to do what is right himself but also to make the patient, the attendants and the environment cooperate."

In his treatise on "Ancient Medicine" he deplores the tendency of medical spokesmen of his time to limit the scope of his great art within the narrow compass of some empty hypothesis. He observed that there were both good and bad practitioners and operators, and, as in all other arts, in medicine there were those who differed greatly in dexterity and in knowledge and consequently he did not think that the Art "stood in need of an empty hypothesis like those subjects that were occult or dubious." Truths of medicine, he said, were the result of "many and elegant discoveries" covering a long period of time and were still in the process of being discovered and applied. In his view, if a practitioner possessed a proper ability and a knowledge of the discoveries previously made he should proceed on the basis of this knowledge to prosecute his investigations.

"It appears to me," he said, "that whoever treats of this Art should treat of things which are familiar to the common people. Illiterate persons cannot easily find out for themselves, but it still is easy for them to understand these things when discovered and expounded by others. But whoever does not reach the capacity of the illiterate common folk and make them listen to him misses his mark." In his treatise on "Air, Water and Places," Hippocrates says that the practitioner of medicine must investigate and will thereby know by the seasonal distribution and by his investigations where and what epidemic disease will be prevalent and "being acquainted with each particular he must succeed in the preservation of health and in the practice of his art."

Analysis.

Let us analyze and paraphrase what Hippocrates says in these illuminating extracts. There are ten observations here that I would have you note:

1. That the art of medicine is the noblest of all arts.

2. That ignorance in the practitioner is disloyalty to the profession and to the public.

3. That though the best doctor may be fallible, he can and must do right himself and make his patient, the attendants and the environment cooperate with him in it.

4. The evil tendency of doctors to get in a rut and stay there, and the even worse tendency of some of them to be mysterious about question of diagnosis and cure.

5. The fact that the truths of medicine are the product of painstaking discoveries through a long period of time, and that, however, ancient some of these truths, medicine is yet a growing art.

6. That the possession of knowledge and ability obligates a physician to investigate and to extend the boundaries of knowledge.

7. That medical knowledge should be made popular knowledge, and the uninformed pub-

XUM

lic may easily be made to understand the essentials of this knowledge.

8. That if the medical man cannot get this message across to common folk he, to that extent, fails in his mission.

9. That it is a part of the medical practitioner's duty to interest himself in and acquaint himself as to the prevalence and distribution of epidemic disease in his neighborhood.

10. Medicine consists of two divisions, the preservation of health and the cure of disease, and that true medical success follows as the proper sequence of these two is observed.

History Repeats Itself.

It will be seen from this outline that before the days of recorded medical knowledge (for to Hippocrates medicine was an ancient art) those upon whom the people relied for cure of their manifold ailments and accidents exhibited many of the characteristics found among those professing to practice medicine today. There was the high type physician, who recognized the sacred character of his calling, but there were also many ignoramuses, pathists, cultists, and quacks essaying to practice medicine. There were both skillful and unskillful doctors in the recognized profession as well as those who were careless of their reputations. Perceiving these things, he, as a conscientious exponent of a noble art, set forth in his record certain tendencies he considered evil for them, and certain observations which he manifestly hoped would be a guide to future medical men.

Noblesse Oblige.

The first observation noted is that "The art of medicine is the noblest of all arts." Is it not in order for us to remind ourselves continually that a noble profession demands of its votaries nobility in word and deed? To the true physician disgrace is the worst thing that can happen to him. To the quack and the charlatan the reprobation of honorable informed men attends them always, and they thrive on it. Their stock in trade is misinformation and villification. The doctor who descends to the use of such material in relation to brother practitioners casts aside the most essential elements of nobility, i. e.: truth and consideration for others. Far too many physicians of character and worth are at variance with other estimable men in their profession. Close examination by them of the grounds of difference between them will in many instances clear the atmosphere entirely. The doctor owes it to himself and to his profession to live at peace if possible with his brother practitioners.

The Stigma of Ignorance.

The second point noted is—that ignorance of the art of medicine constitutes disloyalty to it. Hippocrates is very clear on this point. The public does not know and, therefore, forms unconsidered judgments from the ignorant and vicious. The profession is often judged by the noise and activity of the loud-mouthed ignoramus calling himself "doctor," and is discredited in the eyes of the undiscriminating. People of this undiscriminating type are numerous and with all their faults they are worth saving. Loyalty to his noble art, therefore, demands that the doctor should know his Art as thoroughly as possible, but refrain from discussing or expressing opinions on newer phases of medicine until he shall have informed himself, for what a man does not understand (and the doctor is no exception) he is prone to criticise, and ill-advised criticism often works untold harm. In this day it is no reflection upon a physician not to know all about the newer discoveries of science. To claim such knowledge is to show overweening conceit. He should, however, utilize every avenue open, and every opportunity available to keep abreast with medical progress.

In Hippocrates' time, because practitioners of medicine frequently talked too much and not according to knowledge, the Art lagged behind all other arts. Studiousness, reserve and gentlemanly consideration for others marked the true physician then as now.

Medical Cooperation.

In the third paragraph in our list of quotations Hippocrates states the proposition, that Life is short and the Art long. The occasion, however, he observes is fleeting. Therefore, what is to be done must be done quickly. Experience he intimates cannot always be relied upon, and correct judgment is often difficult. The physician must, as the old sage says, be right himself and then require that the patient, the attendants and the environment cooperate. Not only is this observation good medical practice according to all accepted standards, but

good public health and social practice as well. To fail to appreciate any one item in this summary is to reveal oneself as a loose thinker, and not to practice the last admonition is to put oneself outside the pale of modern medicine.

To make the patient and the attendants cooperate is generally strictly observed, but to make the environment cooperate is often classed by otherwise good doctors as an incidental matter that may be neglected with impunity. It is most interesting and illuminating that such an ancient and honorable authority as Hippocrates thought otherwise.

Details.

In the case of tuberculosis, the environment must cooperate. Sputum cups, sterilized utensils and dishes, and sleeping porches are as much a part of competent practice as good food, nursing, care and obedience to orders. In the practice on malaria, the environment must cooperate. Adequate screening is absolutely essential, and mosquito breeding places nearby must be searched out and treated as well as the patient.

In typhoid fever and dysentery, treatment insuring cooperation of the environment is likewise the doctor's particular business. Attention to excreta disposal inside and outside the home, seeing that the sick-room is well screened, and insuring a safe water supply is as much a duty of the doctor as a correct feeding schedule and nursing routine. In other words if an insanitary privy and an open well are the only methods of waste disposal and of water supply on the premises while the doctor is in attendance on the case, a fatal break is left in the technique of proper management. If the doctor cannot make the attendants cooperate and carry out his directions as to environment as well as to nursing and medicine, he has in the Hippocratic as well as in the modern sense registered a failure.

Narrow Gauge Doctors.

The fourth observation concerns the tendency of a considerable number of doctors to narrow the scope of "The Art of Medicine," and of others to make a mystery of it. This has a decided application to those of us who have not grown with the growth and expansion of our live and rapidly growing profession. The practice of medicine while still an art is now deeply grounded in science, and the static doctor who ignores the proven advances in medicine renders himself an object of pity to the informed. There are many lovable and reasonably financially successful doctors in this group, but it cannot be claimed for them that they are living up to the ideal of Hippocrates.

The "occult and dubious" was also to be condemned as having no place in medical procedure. For a practitioner to make a mystery of a simply explainable medical fact placed him in the class of "dubious" doctors, who are rightly looked upon with suspicion by all who detest the methods of the charlatan.

The Spirit of Research.

In the fifth point listed, Hippocrates acknowledges the debt to those discoverers of medical truths who came before him, and by inference he pleads for a clearer historical perspective without which no doctor can come to a full appreciation of the glories of "The Art." In that early day he apprehended the truth that medicine was a growing, expanding art, with human well-being for its object, and with no recognized limitations as to theory, and, except in honor and honesty, no limitations as to the methods used to achieve it.

This being clearly understood furnishes a fitting preface to point six, which has generally been thought to be a fairly modern conception, namely: the social point of view. Here Hippocrates charges all who possess ability and knowledge with the sacred obligation to extend the boundaries of knowledge, advancing not empirically, but always moving step by step from the known to the unknown. It is seen that here the "modern" spirit of research was born. Can we doctors, the legatees, after twenty-five hundred years of the principles outlined by a great medical seer, fail to appropriate his wisdom? I think that we, with humility, may sit at his feet for furthur instruction.

Social Responsibility.

Point seven enunciates an incontestible social principle, namely: That medical knowledge should be made popular knowledge, and Hippocrates adds as a corollary the less well recognized truth, that the general public may be made to easily understand the essentials of this knowledge. He knew, as we know even more fully than he, that this knowledge, of which

XUM

we are the only custodians, is of supreme importance to all men. "Illiterate persons cannot easily find out for themselves" these important things. Have not we as a profession wandered rather far away from this idea so charged with common sense and common humanity? Have we not rather limited our liberality of ideas and discoveries within the narrow compass of our own fraternity? And do we not now frown upon any kind of general publicity in relation to medical facts? I know some of you will at this point be inclined to remind me that in the immortal oath of Hippocrates occurs the admonition that this "Art" should be taught to none but the especially chosen. A second thought, however, will show that there is no conflict here. Virtually all of our medical troubles have resulted from half-baked teaching to half-baked pupils, but it is one thing to make an M. D. and quite another thing to make a healthy citizenship. The latter is the sacred duty of the medical profession. The first *now* belongs to the Medical College. Our profession is committed to the abolition of disease and to relief of all morbid physical conditions from which mankind suffers. This is an impossible task if the physician, the only competent source of medical information, withholds from the general public the information or the opportunity to acquire the information needed to forestall the ills from which they as individuals suffer.

It may offend the dignity of some to be told that the general public may be easily made to understand the essentials of medical truth, but Hippocrates found it possible in regard to the "illiterate vulgar," as he calls them, of his time. Surely it is possible now, when practically every one can read and write.

Organized Action Needed.

The eighth point, separated from the previous one simply for emphasis, is, that: If the doctor cannot get his message across to people of ordinary intelligence he is a failure, or as Hippocrates phrases it, "Whoever does not reach the capacity of the illiterate common folk and make them listen to him misses his mark." It would appear that if we are to catch up with Hippocrates the profession must, in an organized way, adopt a policy of educating the public in regard to important medical facts. There is no doubt but that this may be done without over-instructing the public or in any sense encouraging them to practice medicine.

A step in this direction was taken by this Society two years ago when it adopted the report of the committee on "public health and education." So far as I know nothing definite has been done from headquarters to develop the idea then advanced and endorsed. I do not know that headquarters is equipped to do anything. I submit, however, that if a certain procedure is desirable for a local society to do, as advised by the resolution referred to, leadership may properly be expected from the parent society.

The resolution referred to is as follows:

"Whereas, many magazines and periodicals as well as advertising columns of both the religious and secular press are filled with misleading statements concerning the ailments of human kind and alleged means of cure, and,

"Whereas, the body of science the regular physician represents makes him custodian of knowledge in disproof of much of this dangerous and purely commercial propaganda, and since such knowledge should be available in greater degree to the public than at present; therefore, be it

"Resolved, That the Medical Society of Virginia hereby urges upon each affiliated society the advisability of appointing a standing committee on public information composed of carefully chosen members, who in simple langauge, in the name of the Society will furnish, from time to time, to the local press medical and public health information of an authoritative character."

Self-Protective Procedure.

We continue to educate ourselves, at least that portion of us who take medical journals and who attend our society meetings, but can we much longer shirk our responsibility to those whose only medical ideas are furnished by the cultist, the patent medicine vendor or the advertising "specialist?" Does not the vogue of these people bear a definite relation to our silence?

In a profession so deeply wedded to tradition as regards professional and social relationships as is ours, it is too much to expect that it will suddenly agree to get out of the grooves that honored predecessors have worn for it through the centuries, however ancient or modern the authority invoked in behalf of such a proce-

dure. The medical leadership in Virginia, however, is looking upward and forward, and I believe is beginning to see whither ultra-conservatism tends. This leadership should, I believe, be prepared to aid in devising ways and means to adapt medical knowledge to the understanding of the man in the street so that, fortified by facts, he will not be led astray by every plausible stranger that tries to sell him a pseudo-scientific gold brick. We are modernizing our ancient art, we are expanding our scientific knowledge and in remarkable ways extending the scope of medical usefulness. Let us "ancientize" our social practice by an adaptation of Hippocrates' suggestion and systematically as a State society furnish to the public in simple understandable terms the medical and health knowledge that is needed for its physical salvation.

Disease Control.

The ninth Hippocratic observation I would have you note well, is, that it is a part of the medical practitioner's duty to interest himself in, and acquaint himself as to, the prevalence and distribution of epidemic disease in his neighborhood. To quote, "He must proceed to investigate—and he cannot miss knowing—the diseases peculiar to his locality—in particular he can tell as the season advances what epidemic (communicable) diseases are to be expected." What, may I ask, can be the reason for Hippocrates calling attention to the duty of the doctor to discover what infections there are in his neighborhood? Is it for the doctor's benefit? Is it to enable him to increase his knowledge to the enhancement of his personal prestige and pocketbook? If you have caught the tone of every utterance quoted from this great man you know this is not true. The purpose behind the acquirement of this knowledge is, obviously, to arm the physician early so that the ravages of disease might be abated, particularly among the common folk, on whom Hippocrates, in anticipation of the attitude of an even greater teacher and physician in a neighboring province five hundred years later, had compassion. Hippocrates was physician to kings and emperors, but he did not neglect his civic and social duty.

Reports A Bounden Duty

In these days when the public has demanded and the State has created a Department of Public Health, a part of whose duty it is to investigate and to inform the proper authorities and the public of the presence and prevalence of communicable diseases as they appear, and to prevent their further spread, it cannot be assumed by the public or by public health authority that the doctors in any community attacked by such disease are ignorant of its presence. The doctor is required to suspect infectious disease at every turn, and under the law must report on suspicion. He has not, as is so often taken for granted, any discretion in the matter. He should not seek to exercise discretion. Though by reason of the indispensable quality of his service he may find a public lenient to his faults, to presume upon this attitude on the part of a friendly and unthinking public at the expense of community health is not the act of a good citizen. According to the Hippocratic standard the doctor sets the highest example of enlightened and disinterested citizenship.

Malpractice.

What shall we say of the natural custodian of community health who fails in this particular? When disease spreads because the attending physician is doubtful as to the serious nature of a case visited or is indifferent as to future consequences, and, therefore, he gives inadequate instructions as to its care, or takes no precautions against its possible spread, what justification can he claim? To himself, his patient and the public he stands convicted either of ignorance or of criminal carelessness, in other words malpractice. Is this too harsh a term? I assure you I am setting up no straw man to shoot at. Many doctors in this State are guilty of neglect in this particular, and well do all of us know it. Entirely too many practitioners fail to make prompt reports. Many cases of diphtheria, scarlet fever, typhoid fever, and even of smallpox come under the observation of physicians, and the knowledge reaches local and State Health Departments only after secondary cases have resulted. Then, too, the sight of many infants is placed in jeopardy because doctors all too frequently neglect to use the nitrate of silver drops in the eyes of infants at birth. At this point I cannot refrain from remarking that since one case of ophthalmia neonatorum in his practice will make the most careless doctor observe the law thereafter, why should any

XUM

doctor wait for this calamity to occur, as it must sooner or later do if the precaution is not taken?

The State Health Department being "on the inside" so to speak, appreciating to the full the great service the great body of the profession has rendered and is rendering to the public and to the cause of public health, has more often than not accepted excuses for flagrant neglect on the part of doctors that would not stand in any court. I am sure none of you think that a doctor should be excused from the extremely important civic and humanitarian duty of reporting infectious disease or be exempted from penalty for not doing so, when penalty is incurred. If, in the future, a less complacent attitude be adopted toward physicians who fail to suspect infectious diseases and report them promptly, and who fail to apply preventive measures to them; it will simply be belated justice overtaking peculiarly flagrant violators of a sacred medical principle.

Health Preservation First.

The tenth and concluding observation quoted from the writings of Hippocrates is, that the "Art of Medicine" consists primarily in the preservation of health, and secondarily the cure of disease.

While the prevention of disease as a specialized branch of the profession had to wait, as did many other specialties, many centuries for its scientific basis, it is now assuming in the public mind of enlightened communities the place of precedence Hippocrates gave it. A physician does not have to be a prophet to perceive that in the not distant future, through the more general dissemination of knowledge and of the activities of public health specialists, the "disease business" will become more and more restricted. "Prevention *is* better than cure" and, as prevention becomes more the rule and less and less the exception, the doctor, if he is to survive in security and comfort, and he must survive, will have to make adjustments to meet the changed conditions the new situation is bringing about. This will involve thought, open-minded discussion and perhaps reversal of some preconceptions. Certainly it will do no good to try and check the tide of preventive activity, even if such a course were not contrary to the most cherished tenets of our profession. The flood gates of that tide were opened by men whom we physicians most delight to honor, and the doctor will learn to swim or he must sink. The obvious thing, therefore, for the physician to do is to inform himself in regard to the well considered plans of the State Health Department for removing the causes of disease and premature death, and whole-heartedly enter into them.

Salvation for the Doctor.

There is a place in these plans that is not without prestige and profit for every honest physician in the Commonwealth. In a prize essay on "How the Family Doctor Can Increase His Usefulness and His Income," written during the past year by Dr. J. H. Hiden, of Accomac County, one of that group of physicians who have been hardest hit by the diminution of disease,—namely, the country physician—it is clearly set forth how a physician may cooperate with State and local health authority and practice preventive as well as curative medicine consistently and honorably, and yet not be prejudiced in practice or in pocketbook. What one physician can do and is doing is possible to all. To the contrary, no concession to counsels of reaction, however, sweeping will save the doctor who neglects to keep in touch with medical progress and who will not acquaint himself with the newer discoveries and methods in medical, surgical and preventive practice. The public that is able to pay, demands the best and, when the best is not available nearby, the telephone, the automobile and good roads (not to mention the possibilities of the airplane), will quickly procure it.

Medical progress and the newer method comprehend public health practice in ever-increasing measure; the ethical, the wise and the profitable course for physicians in their individual and in their organized capacities, then, in my judgment, would be to help establish or, if already established, to strengthen and develop for their communities the highest type of public health service possible.

The profession in such a locality will then be in position to set the pace for public health and guide its course to the end that the work of prevention not only will be the better done, but the doctor's legitimate claims to consideration by health authority will be placed beyond question or suspicion.

The Final Word.

In conclusion, let me say that if we wish advice as to how to be money-making doctors, we will have to look elsewhere than to Hippocrates for it. Nowhere in any part of his writings does he discuss the business side of "The Art." How to secure large fees or attract a clientele formed no part of his record. He apparently believed that devoted study, hard thinking, close observation, careful experimentation carefully recorded, and conscientious application of the knowledge gained to the needs of the people about him, would insure him a decent livelihood, and it is certain that he taught that the aim of every true physician should be to so practice "The Art" as "to live respected by all people in all times."

Does this outline of an ancient ideal constitute an impossible program for the twentieth century physician? We would, I am sure, all feel humiliated if we were forced to concede that Hippocrates' vision as to modern social demands was more vivid than our own. May the medical profession in Virginia never stray from the road which it has, on the whole, hitherto walked, and may it in the light of a clearer apprehension of the views of its ancient and honorable father and founder, Hippocrates, see the newer vistas of public usefulness opening before it, and advance in unbroken phalanx along the broadening highway leading thereto.

Reference is made to The Works of Hippocrates, translated by D. Francis Adams.

IT'S NOTHING BUT NERVES: FORGET IT.*

By R. L. RAIFORD, M. D., Franklin, Va.

Were it not for the fact that we continue to see in undiminishing numbers patients whose predominating symptoms are of a nervous nature, who have gone the rounds from clinic to clinic coming back with the professional assurance that "Its only a case of nerves—go home and forget it," there would be no excuse for this paper.

I recently heard a good man say, in discussing the acute abdomen, that he hoped to see the day when "Acute Indigestion" as a diagnosis would be outlawed by the profession. Unquestionably, many an acute abdominal condition has been allowed to become serious because of the mistaken idea that it was only an innocent digestive disturbance. Just as truly is it a fact that many a life has been allowed to become miserable and the patient a burden to himself and a bane to his friends because of the erroneous assumption that he or she is only nervous, hysterical or just putting on, when if a close, painstaking diagnostic survey were made, the real seat of the trouble could usually be located.

We still hear good men speak of nervous indigestion, nervous headaches and that nebulous blanket term neurasthenia, as wisely as if they were really talking about disease entities instead of merely symptoms. This same type of man will also discuss the various so-called functional types of insanity that may develop as a result of neglected treatment of such nervous cases with the same degree of assurance that he would use were he talking in terms of real disease nomenclature.

That neurasthenia and many other nervous manifestations are often erroneous terms that cover our ignorance of some form of real causative pathology in the system is becoming more and more apparent to some of the most forward looking thinkers of our profession. Nomenclature of diseases along this line, as well as along many others as given in even our modern text books, is often very misleading as to the real or primary pathology in question. One of my books on skin diseases mentions the existence of over fifty kinds of eczema. Now we know that eczema, when viewed from the standpoint of its cause, can be classed in two main groups—that which originates as a result of toxemia from without or from toxemia from within, plus a susceptible system.

In my experience, the same rule holds true in nervous diseases. I have yet to see the patient suffering from so-called functional nervous disorders, provided the habits, diet, and manner of living were not at fault, who did not have some internal source of toxemia as a basis for the continuance of the nervous symptoms.

A typical case in question will illustrate the point. Some years ago a very robust, healthy, married woman of thirty developed a typical case of nerves, accompanied by attacks of agonizing sick headaches. She had a brother in a mental hospital and this, together with her extreme nervous symptoms, made her friends fear for her mental stability. Many

*Read at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.

XUM

forms of treatment by many doctors were given, including removal of ovaries, and appendix and catheterization of the ureters, with no improvement, and it became necessary to give morphine repeatedly to relieve her worst attacks. Finally, her husband, knowing that she had had trouble with her tonsils as a child and being impressed with tales he had heard of recoveries from various troubles by removal of tonsils, requested his doctor to have her tonsils removed with the hope of helping her. Fortunately he hit the right trail and recovery to normal with disappearace of all nervous symptoms and headaches was so prompt as to be almost unbelievable.

For several years she continued in excellent health until the summer of 1926 when the nervousness and headaches began to reappear. In spite of all treatment her symptoms steadily grew worse until hypodermics were again necessary to give relief. She was finally sent to one of the leading diagnosticians in the country who, after a long and exhaustive study of her case, assured her that she was a perfectly normal woman and sent her home telling her to stop all treatment and forget her nervousness.

Such assurance from so noted an authority pepped her up and for awhile she improved some, only to go down soon again with another unbearable headache accompanied by the same nervousness as before. It was then that it was decided to X-ray her teeth, though they appeared to be perfectly normal and every doctor and dentist who had seen her felt so sure they could not be a source of her trouble that such an examination had not suggested itself before. One infected molar was found. It was extracted and her symptoms have again cleared up like magic and she is now a normal healthy woman.

You may say this is an extreme case but I have seen many others just as outstanding as this one.

Experience and observation has taught me to be extremely cautious in telling a patient that there is nothing pathologically wrong with him. A few years ago one of the finest young men of my acquaintance who had been having a lot of indefinite nervous symptoms was assured after an exhaustive study by one of the best internists in the South that he was only over anxious about himself and to go home and forget it. Within a week he did forget it. We followed his remains to their last resting place—a sad climax to the history of a lovely character who died suddenly from a case of only nerves.

Please pardon me for saying that it takes no brains at all to say that your patient is suffering with a case of "nervousness." He is indeed already highly aware of that distressing fact before seeing you. Any tyro can wisely assure you that Mrs. So and So is a neurotic, hysterical nuisance, but it takes some gray matter to dig in and find what is causing this chain of symptoms.

The more I delve into the study of chronic diseases, the more thoroughly I am convinced that the prevalent ideas of their etiology and nomenclature and treatment are often at fault. I have grown to believe that in the average normal person there is usually some form of chronic infection back of the chronic symptoms we have so often looked on as primary diseases. Chronic nervousness of whatever nature is no exception to this rule.

Finally, let me say, that given a once normal person who has developed neurasthenia or any other chronic symptoms, if you will correct the diet and living habits, eliminate syphilis and all foci of infection, and do this thoroughly, you may, if you desire, discontinue all other forms of medical treatment and "forget it" if you please, with the full assurance that a very large percentage of your patients will become once again normal and healthy.

It may be a little unusual stand to take but it would seem better to admit that we are licked in an effort to figure out the real cause of the chronic symptoms in any given case than to hide behind the untenable screen of "It's Nothing but Nerves: Forget it."

TYPHOID REVER—PROPHYLAXIS AND DIETETIC TREATMENT.*

By THOMAS J. TUDOR, M. D., Norton, Va.

For a long time typhoid fever stood fourth, tuberculosis leading, pneumonia second, and cancer third in causes of deaths in the United States. In 1925, typhoid fever was 16th in the mortality list, with 8 deaths per 100,000. That year "flu" caused 3½ times as many deaths, hernia ¼ more, suicide 50 per cent more, puerperal sepsis 20 per cent more, appendicitis about twice as many, and diabetes just twice

*Read before the fifty-ninth annual meeting of the Medical Society of Virginia, at Danville, Va., October 16-18, 1928.

as many. Last year, one of the largest industrial insurance companies (Metropolitan) reported a mortality from typhoid fever of only 5 per 100,000 in their list of policyholders, but this Company distributes a great deal of health literature and there is some supervision of these risks.

Coming into Danville last summer, my mother asked me if I remembered the Danville fever, and I did recall it as a boy, in our country home 65 miles away, what dread we had of this disease with its fearful mortality, and in my early visits here we were afraid of the water and the milk.

It is a far cry from then to this day when the weak link in the sanitary chain is the country. However, after all we have been able to do, there is still what some writers have called (I hope, erroneously) "normal" or residual typhoid, and it is figured that the death rate from this should not exceed 5 per 100,000. It is comforting to know that the typhoid bacillus has no spore, that it is not difficult to destroy, and that, when dry, it will not survive as a rule more than a few hours, and, therefore, dust is not usually dangerous. Heat of 60 degrees C. for 20 minutes will kill the germs.

"The typhiod bacillus may live 12 days in crude sewage (Firth); 14 days in a septic tank (Pickard); 4 months in butter (Balley and Field); five days in home-made cheese (Heim); 12 days in pot cheese (Lemke); 39 days in ice-cream (Mitchell)."—Rosenau. Sour buttermilk will rarely sustain life of the germs longer than 24 hours.

We believe that the disease always enters through the mouth, and we now think of it as a blood infection, or bacteremia, rather than our former conception of it as a local infection of the intestinal tract. The bacilli leave the system chiefly through the feces and urine. sometimes appearing in the former before the fever, and in the latter from the second to the fourth week. Recently, I have confirmed early diagnoses by fecal examination, sometimes before the blood test was positive. Too, it is much easier to procure from children.

Water-borne typhoid fever is common and most dreaded, and, whereas typhoid fever has always been more prevalent in the South than in the North, both in this country and Europe, most of the great water-borne epidemics have occurred in Northern cities, and they nearly always occur during the winter, late fall, or early spring, when the water is cold.

Freezing does not kill the typhoid bacillus, but little natural ice from uncertain water supplies is now used, and water used by commercial ice plants is usually either boiled or distilled, but ice-cream may be very dangerous, as may all the dairy products, for typhoid germs thrive and multiply in most of them,—sweetmilk being the most dangerous, and sour buttermilk the least. However, in the cities pasteurization is a powerful safeguard.

Oysters, mussels, and shell-fish may be dangerous, and outbreaks have been traced to these when eaten raw. The same is true of raw vegetables, such as celery, lettuce, water cress, and radishes, especially when these have been fertilized with night soil. Commercial fruits, apples, peaches, etc., under modern methods of cultivation, are sprayed with powerful antiseptics to keep orchard pests under control, and these are washed off by the rains, and the fruits are gently picked by hand to avoid bruising, hence they are safe.

The house fly, which we tried to call the typhoid fly, is a menace wherever typhoid is present. This insect may on his hairy legs and body carry infection from a foul privy or an infected dish and deposit in a spotless dining-room on a tempting morsel of food two miles away.

Contact, not with the breath of the typhoid patient, but more remotely through soiled hands, remnants of food, infected thermometers, dishes, towels, or other fabrics, may account for many new cases. Sedgwick has said, "Flies, fingers, and food," and Chapin has said "Dirt, diarrhea, and dinner," and army and congested tenements and apartments, bedding and cast-off clothing have been responsible for many cases. Too many hospital attendants have typhoid fever, and this is because the medical conscience and technique with infections has not developed to the same degree that the surgical has.

Cleanliness, physical and biological, then, is the final word. How many times, even in the old days, have we seen in a scrupulously clean home one case of typhoid not followed by others? Clean food, water, person, and environment, early diagnosis, and until this can be made a provisional diagnosis of typhoid, with all the precautions against its spread, and a wholesome respect for the disease by the

physician and nurse, will help us to keep it down to the minimum. When the physician, after attending a case, washes his hands, then passes them through the disinfecting solution, and the people in the household see him let them dry, it has a wholesome effect upon them above words. Even those who are well should always, typhoid or no typhoid, wash their hands after defecation and before eating, and fingers and all unnecessary objects should be kept out of the mouth.

The source of infection should be located in every typhoid case, if possible. We should keep in touch with our convalescents until four consecutive weekly tests of urine and feces indicate the absence of typhoid bacilli, for it is believed, even in those that will not be carriers for a long time, that the bacilli may appear in the feces off and on for six months. We should tell the people this so that they will not relax in their precautions until the danger can reasonably be considered over.

This brings us to the perplexing problem of carriers. Albert believes that 25 per cent of these have never had typhoid clinically, and that 1 person in every 1,000 of our population is a chronic carrier. Women are carriers four times as often as men, and, since they are in the main our food handlers, the hazard is apparent. Any woman with symptoms of gall-bladder disease should be regarded with suspicion, as the chief nidus of the germs is usually the gall-bladder. Carriers are of both the fecal and urinary variety. The fecal are more dangerous, and both are irregular in the dissemination of the germs. We do not know what to do with carriers. However, they should be treated with hexamethylene acidulated, and they and their associates notified of the menace, and all warned to take typhoid precautions.

Side results in typhoid prevention are of value and are always apparent in the lowering of the incidence of those diseases, the spread of which is similar to that of typhoid. Standard text-book precautions in individual cases are omitted here, and no attempt has been made to cover the entire subject, but rather to discuss some of the high spots so that we may not forget eternal vigilance is the price of safety.

Preventive typhoid inoculations, especially since the brilliant results in the American Army during the World War, when, during 1917 and 1918, there were only 1,058 cases of typhoid with 158 deaths, is on a firm footing with the physicians and most of the people in this country. One case of typhoid usually, but not always, confers immunity for life, but inoculations should be repeated every three years and the triple vaccine should be used. All people exposed to infection, whether from typhoid, or from uncertain water or milk supply, or what not, should have this protection, which should extend to the aged,—for we have dispelled the myth that the aged rarely have typhoid. We believe in these inoculations implicitly, but we should never let them replace to the slightest extent standard typhoid precautions or our sanitary program.

Diet: Since observing in 1909 the results of liberal feeding in the patients of that brilliant scholar of the German School, Dr. Moses D. Hoge, of Richmond, I have practiced and, in season and out of season, advocated liberal feeding of typhoid patients. 3,000 calories a day are not too much for adults, and statistics show a lowering of mortality for such feeding,—that hemorrhage and perforation are less liable to occur, and we find a reduction in delirium, stupor, and tympanitis.

The food should be soft, nutritious, and largely of carbohydrates; one-third of the calories may consist of fats. Sugars in the form of syrups, honey, marmalades, jellies, and jams, and even a bit of good candy are permissible and enjoyed. Cream and butter supply the fats, and the breakfast foods, preferably those of rice, oats, or wheat; soft eggs, ice-cream once daily, and milk freely with the above make a variety to which may be added rice pudding, custard, gelatin, tapioca, chocolate, cocoa, green beans, baked or mashed Irish potatoes, and steam toasted bread.

The morale of the patients who eat is far above that of those who starve. It is not uncommon to have a typhoid case at the end of the attack who has not lost much weight. Those who survive a severe attack on a liquid diet are so weak, so emaciated, and so generally run down that they are a standing invitation to the development of other diseases, especially tuberculosis.

THAT GOLDEN ROD SLIP.

We are grateful to our members who responded to the request about the Golden Rod Slip, which was placed in the December journal. If those who have not paid for 1929 will look this up and send check to this office, we will appreciate it and it will save expense to the Society.

REVIEW OF ONE HUNDRED CASES OF PROSTATECTOMY WITH SPECIAL REFERENCE TO EARLY DIAGNOSIS.*

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and

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In the last few years the mortality following prostatectomy has been reduced to less than 5 per cent in the hands of experienced operators. This is due to the more universal recognition of the associated degenerative processes concerned in prostatic hypertrophy. Adenoma of the prostate is often but a part of the degenerative changes going on in men reaching the sixth decade in life A disarrangement of the renal as well as the cardio-vascular system is found in half of the cases examined. Smith found 50 per cent of his cases had disease of the myocardium. Willus reports degenerative changes in 42 per cent of a series of cases of prostatism studied at the Mayo Clinic. Hypertension was found in 36 per cent with arterio-

Fig. 1.—Contrast cystogram showing a large diverticulum of the bladder associated with prostatic adenoma. Bladder is filled with air after injecting 5 per cent sodium iodide. Diverticula are found in 5 per cent of the cases and usually require resection.

sclerosis present in 42 per cent. These findings show that prostatic hypertrophy undoubtedly tends to increase the number of cases of cardio-renal disease in men reaching fifty-years of age.

*Read before the Hinpocrates-Galen Medical Society, Washington, D. C., April 17, 1928.

Incidence

Approximately 40 to 50 per cent of the men reaching the age of fifty years have some degree of prostatic enlargement. This may be found by rectal palpation. Hunt found that half of the men reaching fifty years in a series of cases, that were given routine examinations at the Mayo Clinic, had some degree of prostatic enlargement. The report shows how relatively common this condition is, and that one should constantly be on the lookout to determine its presence in patients past middle life. Smith and Willius have called attention to the frequency with which cardio-renal breakdown accompanies prostatic hypertrophy, so that if we are to give our patients the best chance of completing the normal expectancy of life, they should be relieved of the back pressure before the heart reserve has broken down and the kidney function destroyed by back pressure.

Age of Patients

45	to	50	2	per cent
51	to	55	10	per cent
56	to	60	16	per cent
61	to	65	28	per cent
66	to	70	23	per cent
71	to	75	15	per cent
76	to	80	3	per cent
81	to	85	2	per cent
86	to	90	1	per cent

In this review of one hundred unselected cases of prostatectomy performed by us, it is felt that certain points should be emphasized, especially the pre-operative diagnosis and treatment. As Bugbee has said, the operation is but an incidence in the handling of a prostatic. The low mortality in this work has been favorably brought about by recognition of the value of pre- and post-operative treatment. This is due to the more universal recognition of the fact that all of these cases are potentially uremic as a result of urinary retention, not only of the urinary apparatus, but of the system as a whole. The use of the renal function and blood retention tests has brought about a new conception of the pre-operative management of the prostatic. This alone has caused a reduction in the mortality until now prostatectomy in experienced hands is a relatively safe procedure.

Classification

Benign adenoma of the prostate forms

the major portion of these obstructions and constitutes at least three-fourths of the cases seen. The remaining group is ordinarily classed as inflammatory in origin. Walthall has recently called attention to the benefit de-

Fig. 2.—Large oval, vesical calculus found in a case in this series. This patient had a calculus, bilateral diverticula, together with enlargement of the prostate. Calculi are found in from 12 to 15 per cent of all cases of prostatic hypertrophy.

rived from palliative treatment in the inflammatory type of prostatism. Systematic massage, together with local heat, either diathermy or hot irrigations, often causes a marked reduction in the residual urine as well as in the subjective symptoms in the inflammatory type of case. The patient should be given the benefit of this conservative treatment in those cases in which the adenomatous growth is small. One should not place too much reliance on the rectal findings in prostatic hypertrophy, such as in the pedunculated type, with the principal growth at the expense of the urethral lumen. This type of obstruction often causes more symptoms of retention than does the large adenoma, which in its growth produces intravesical protusion but does not encroach on the lumen of the urethra. The cystoscope is of inestimable value in the diagnosis of this type of case but should be used only after the patient has been decompressed.

Malignant Complications

Statistics vary as to the incidence of carcinoma of the prostate but recent reports from the literature show an incidence of from 25 to 30 per cent of all prostates removed in which careful miscroscopic serial section was made. We recently had a series of seven consecutive cases in which the histological studies showed early malignancy after repeated sections were

Fig. 3.—A plain X-ray showing prostatic calculi associated with some obstruction of urination but no enlargement of the prostate. These calculi sometimes require removal if obstruction is marked.

made. In none of these cases of malignancy were we able to detect the characteristic rectal findings which usually enables one to arrive at a corect pre-operative diagnosis. It is our opinion that many cases are classed as benign, whereas if a large number of sections were made one would frequently pick up an early carcinomatous lesion. Bumpus reported a series of cancer of the prostate in which 30 per cent were found to have invaded the adjacent bones, an additional 10 per cent had metastasized to the regional lymph glands when the patients were first seen. This makes approximately 40 per cent of carcinoma of the prostate in which a prostatectomy is futile. The malignant prostate with its rich lymphatic system is not unlike the cervix uteri in that metastasis is early, widespread, and is frequently seen so late that surgical intervention is futile. Watson advises the use of radium emanations in this condition. The capsules are imbedded throughout the prostate by means of a trocar inserted through the perineum. If the case is seen before metastasis has occurred, 10 per cent of these cases are apparently clinically cured. A supra-pubic cystotomy is of benefit where acute retention occurs and also enables one to place

radium in the prostate through the supra-pubic incision. Deep X-ray therapy has not been as effective as has radium.

Pre-Operative Care

In this review of one hundred cases of prostatectomy performed by us it is felt that certain points should be emphasized, especially the importance of diagnosis and treatment. In the early days of prostatic surgery, the mortality was as high as 50 per cent, due to lack of recognition of the fact that a patient with enlargement of the prostate is uremic, has a relative hypertension with marked embarrassment of the cardio-renal system. The principal danger in the handling of a prostatic is in the decompression period. Experience has taught us that if we can carry the patient through the period of decompression the actual enucleation of the gland is relatively safe.

Lesions

Prior to drainage, stablization of the cardio-renal system has not occurred and the patient usually has elevation of the blood pressure. Following drainage of the bladder, the pressure often drops from twenty to fifty mm. of mercury. This causes a lowering of the intrarenal pressure which is followed by serious

Fig. 4.—Pyelo-uretero-cystogram showing pyelonephrosis of both kidneys as result of back pressure from obstruction of the lower urinary tract.

renal impairment. In this study there were three deaths occurring during decompression whereas there were but three deaths from prostatectomy. Supra-pubic cystostomy without preliminary catheterization carries a definite mortality of from 6 to 10 per cent.

Hunt has pointed out that renal insufficiency, cardio-vascular disease and pulmonary lesions are responsible for 50 per cent of the deaths following prostatectomy. This shows that treatment preliminary to operation is imperative. In the early days of prostatic surgery, the mortality was very high due to failure to recognize the degree of cardio-renal embarrassment present. The two-step prostatectomy came into vogue as an answer to this particular problem and carried many old men through the dangerous preliminary period. The two-step prostatectomy, we think, should be divided into a three-step procedure if acute retention is present, the first being decompression with a urethral catheter. The work of Van Zwalenburg, Cunningham and others has shown that supra-pubic cystostomy in the presence of acute retention has a definite mortality. Bumpus says that if the blood urea is over one hundred milligrams per c.c. it is very dangerous to subject the patient to the additonal renal load that a supra-pubic cystotomy implies. In our own work we have seen numerous cases with acute retention of urine, resulting in disorientation and cardio-respiratory embarrassment. By utilizing an indwelling catheter and gradual decompression, we have been able to carry them through the operation successfully. When a patient comes to us seeking medical advice, complaining of nocturnal frequency, difficulty in starting and stopping

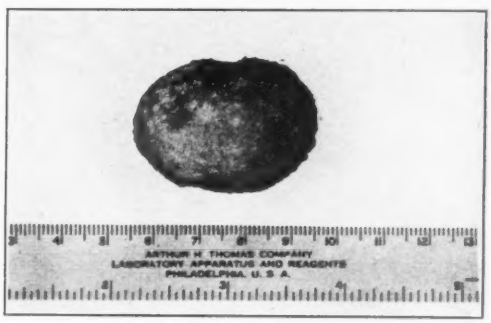

Fig. 5.—Photograph of large stone removed in connection with one of the cases in this report.

the urinary stream, together with incomplete emptying of the bladder, our attention should be immediately focused on the prostate as a possible cause of such symptoms.

In the inflammatory type of prostate the first three symptoms are usually present and, as a rule, surgical measures are not as beneficial as is conservative treatment, later, if necessary, followed by the punch operation or excision of the obstruction with the radio knife. In the presence of sixty c.c. or more of residual urine together with difficulty in emptying the bladder and nocturia, one should not hesitate to advise early operative interference. Some prostatectomists may disagree with us on this point, preferring to wait until the issue is forced. This delay frequently causes a depletion of his cardio-vascular reserve. He becomes more susceptible to intercurrent diseases as well as greatly increasing the probability of the prostate becoming cancerous. Occasionally, as Walthall has pointed out, in the presence of an acute infection a mild degree of prostatism will subside with massage and hot irrigations. This is the exception, however, and once retention occurs over a considerable length of time with difficulty in passing the urine, one should not hesitate to advise extirpation of the obstruction. We have frequently seen patients who had been treated elsewhere and dismissed as cured only to have a recurrence of their former symptoms as soon as their former habits were resumed. The earlier the patient with a definite obstruction is operated on, the more likely a permanent cure will be obtained. It is a commonly accepted fact that there is a time in all

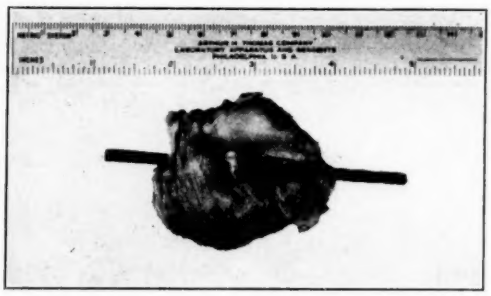

Fig. 6.—Photograph of a benign adenoma enucleated *en masse*. Black marker indicates the position of the urethra.

cases of carcinoma when a patient is amenable to surgical interference, i. e., in the pre-cancerous stage. If we are to give our patients the best advice, we should impress upon them the frequency with which malignancy occurs and the necessity of early surgical treatment. By instituting palliative treatment in this type of case we subject that patient to the added risk of a terminal uremia which precludes the possibility of permanently relieving the obstruction. As a result of obstruction at the bladder neck, back pressure on the kidney soon manifests itself by a low grade urosepsis, the severity of which depends on the amount of obstruction and the length of time it has been present. If this back pressure is allowed to exist over a considerable period of time the kidneys, as well as the cardiac system will become so badly deranged that the possibility of a cure is greatly lessened. When a man past fifty years presents himself with the above enumerated symptoms, the history, with a careful urological examination including rectal palpation, will usually reveal the cause of the urinary disorder. One of the most frequent complaints is loss of appetite and sleep. This gradually undermines the patient's general health and creates a vicious circle. A low grade ileus is frequently encountered and may be mistaken for an intestinal disorder when the real cause is a mild urosepsis. The blood pressure will be found to be much elevated as a result of the back pressure throughout the renal system. The degree of hypertension is a rough index as to the amount of back pressure on the kidneys. Following drainage of the bladder, the blood pressure will quickly drop as much as one hundred mm. of mercury, finally becoming stabilized when the kidneys have reached their maximum output. The amount of residual urine can be quickly and easily estimated by catheterizing the patient following urination. Statistics show that the average expectancy of life following the institution of catheter drainage is less than five years, so that the patient should be warned that removal of the obstruction is the only method offering a permanent cure.

Value of Cystoscopy and X-Ray

Cystoscopy is of great value in estimating the amount of prostatic enlargement into the bladder, though we do not advocate its use routinely. The X-ray should always be employed before operation and often throws additional light on associated lesions such as stones and diverticula. Judd fund diverticula in 5 per cent of his cases with 15 per cent showing vesical calculi present.

Summary of Cases

In our review of cases, diverticula were found present in seven cases and stone in eleven. One

of the cases had a very unusual dumb bell stone located in the bladder and adjacent diverticulum. This is a rare combination. Two men in this group were under forty-five years of age, both having acute retention as a result of median bar formation. Two patients in this series also had a renal tumor present, one having an enlarged prostate—hypernephroma, together with perinephritic abscess. Both patients recovered following the nephrectomy and prostatectomy. One other case had been partially prostatectomized elsewhere and subsequently developed acute retention, one having multiple fistulae and necrosis of the pubic bone present. All were relieved of their obstruction and made a complete recovery. One other patient had to have a cystostomy for the removal of a large stone left in the bladder following a perineal prostatectomy done elsewhere. The average age was sixty-six years. The oldest was eighty-five years old and lived several years following the prostatectomy. Sixty cases had a two-step operation, the other forty had a prostatectomy following catheter drainage. Two patients had a combined vesical calculi and diverticulum, one having several diverticula present. There were ten negroes in this study, none of which had stone present. There were three deaths in this series, two occurring on the fourteenth day of convalescence, one being the result of a stroke of apoplexy. We did not elicit the fact that he had several strokes prior to entrance into the hospital. The other patient died from a low grade septicemia. The third death was on the seventh day following operation and was due to chronic myocarditis.

Summary of Pre-Operative Treatment

Briefly the pre-operative care of the prostatic consists in: first, drainage of the bladder with renal decompression; second, stabilization of the blood pressure plus general supportive measures; third, determination of the blood retention and dye excretion tests together with the clinical condition of the patient; fourth, a complete blood study, including hemoglobin, red cell count, leucocyte count, blood sugar, bleeding time and determination of the blood type; fifth, a complete X-ray study, including a search for metastasis if carcinoma is suspected, and if necessary cystoscopy and cystography to determine the type of prostate and whether or not associated lesions, such as stone, diverticula, or disease of the upper urinary tract, are present. Blood transfusions should be utilized if the hemaglobin remains low. We have transfused patients several times before the blood picture warranted any operative interference.

Anesthetic Used

We use ethylene anesthesia routinely in these cases and are satisfied that sacral anesthesia possesses no advantages over a carefully given ethylene anesthetic. Forty cases in this study had either spinal or sacral field block, fifteen had nitrous oxid, the remainder ethylene. The supra-pubic operation has been very satisfactory and has been utilized in all of our cases. The perineal operation has been most satisfactory in the hands of Young, Davis, and others. Lack of time precludes a discussion of the technique of prostatectomy as it is familiarly known to all present.

Post-Operative Treatment

Hemorrhage, shock, renal insufficiency, and infection are the most common post-operative complications of prostatectomy. Hemorrhage can be adequately controlled by using hemostatic gauze, preferably kephalin. The Pilcher bag is used by some operators. Shock has been greatly lessened as the result of the anesthetic now employed as well as the rapidity of opera-

Fig. 7.—X-ray of a case in which a partial prostatectomy was done elsewhere. Patient had a persistent suprapubic sinus with erosion of the pubic bone. Sinus along thigh.

tion. We use hypodermoclysis routinely as soon as the patient is returned to bed, and find that it helps to keep the blood pressure up as well as lessen shock. Fluids are given freely and can usually be taken within a short time after the operation. Water in quantity allows an interchange of body tissue fluids with the blood and increases the hemoglobin carrying power of the blood by reducing its viscosity. Infection can usually be controlled by instilling some mild antiseptic into the incision, allowing it to penetrate to the bladder and prostatic cavity. We rarely see the old, foul, greyish, incrusted sloughing incisions that we formerly did, due to the better antisepsis practiced at the present time. Hiccough is a danger signal of impending uremia and should be actively combated by forcing fluids. Hypostatic congestion of the lungs can usually be avoided by frequently turning the patient in bed and allowing him up on the fifth or sixth day. Digitalis and caffeine sodium-benzoate are very useful in an already weakened myocardium. The blood pressure should be checked daily to detect a failing circulation. Electrocardiograph studies are very essential if one finds a marked discrepancy in the systolic and diastolic pressure. Epididymitis occurs in approximately 20 per cent of the cases and can usually be relieved by elevating the scrotum and applying 5 per cent guaiacol ointment. Diathermy has been very useful in this troublesome complication. Some surgeons do a vasectomy previous to operation to prevent epididymitis. The patient should not be discharged cured until the bladder urine is relatively free from pus and urination normal. Hyperglycemia is occasionally seen following operation and delays healing. A careful check should be made of the blood sugar before and after operation. Blood transfusion is also very helpful after operation in anemic debilitated patients showing no daily improvement. In one case, that of a physician, we resorted to its use five times before operation to build up the hemoglobin from 48 to 60 per cent. His convalescence was then uninterrupted. Frequent consultation with an internist is very helpful in many cases with cardio-vascular and pulmonary complications.

End Results

We are frequently asked what effect the prostatectomy will have on the sexual function. We can definitely assure the patient that if it is present before it will be present following the operation. Hunt found 75 per cent of his cases had either no change or an improvement in the sexual desire. We can offer the patient at least a 90 per cent functional recovery after prostatectomy if malignancy can be excluded. As a result of the improvement in drainage, together with the increased internal secretion from the liberated prostatic tissues, these patients undergo a rejuvenation and frequently feel better than they have in a number of years.

Summary

The best result in prostatectomy can be obtained by observing the following:

First, early diagnosis and early surgical interference in the presence of sixty c.c. or more of residual urine, with inability to empty the bladder.

Second, a complete pre-operative examination, including X-ray, cystoscopy, cystography if indicated, dye excretion with the blood retention tests, together with a total blood study and daily urinalyses.

Third, a well inducted ethylene anesthesia plus a rapid enucleation of the prostate. Careful post-operative attention including cardio-vascular support, fluids, rigid antisepsis, and free elimination of the gastro-intestinal tract.

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THE HISTORY AND AIMS OF THE VIRGINIA HOSPITAL ASSOCIATION.*

By J. M. SHACKELFORD, M. D., Martinsville, Va.

There are in Virginia 118 hospitals representing about 16,000 beds. These hospitals are scattered over the State from one end to the other, and are all working together for one common cause. It is self-evident, therefore, that a great deal of co-operation is needed,

*Address of the President before the Virginia Hospital Association, in Danville, October 16, 1928.

and that can only be brought about through a hospital association. With that end in view, thirteen hospital executives met in Roanoke, Virginia, about eighteen months ago and formed a nucleus around which was hoped would grow a large, active and useful organization to be known as "The Virginia Hospital Association". Among the active and enthusiastic organizers was Dr. S. S. Gale, of Roanoke, Virginia, who, to our sorrow, soon after that meeting passed to the Great Beyond, and by his death the Association lost one of its charter members.

In forming this Association, it was thought best to invite all hospital owners, executives, superintendents of the different hospitals and nurses to join, as it was fully realized that the medical, hospital and nursing professions are so closely allied and one profession is so dependent upon the other, that one cannot exist without the other. Therefore, it is fit that these professions join together, hand in hand, for one common cause—the success of the hospitals in this country. We must all realize that the prime cause for the existence of doctors, nurses and hospitals is for the care of the sick and of suffering humanity.

The time is within the memory of men that hospitals in Virginia were very scarce, only a few being located in the larger cities. At that time, few people could be induced to go to hospitals, and, most of those who did go, went as a last resort and from where they never expected to return. Fifty years ago no one was carried to a hospital except for a very serious operation, and the mortality rate following operations was necessarily high, not so much because of the crudeness of surgery at that time, but, because of the character of the cases submitting themselves to surgical procedures.

I well remember the time when most of the surgery from this section of Virginia was done in Richmond by that great pioneer of surgery in the South, Dr. Hunter McGuire, and if a patient for any reason could not be gotten to Richmond, his chances for relief were small indeed. At the present time, hospitals, both large and small, are within the reach of every section of the State, and I dare say that but a small percentage of the people of Virginia live outside of a radius of fifty miles of a hospital where good medical and surgical treatmet can be obtained. There is at present, in almost every town with as many as 5,000 population, a hospital with from fifteen to fifty beds, sufficiently equipped to take care of 90 per cent of the people who can be benefited by hospital treatment.

The hospitals in the smaller towns or communities cannot furnish the specially trained and efficient clinicians in the various specialties that are found connected with the clinics of the cities, where every test can be made, but they do contain men of experience and common sense who by their knowledge of clinical medicine and surgery can and do arrive at a diagnosis sufficiently accurate to render the proper therapeutic measures and give the patient relief.

The older men of the profession knew but little about blood chemistry and blood counts, but they did have a wonderful sense of touch and of observation. They had good reasoning powers and used their knowledge in a way which would put the average present day diagnostician, with all of his modern equipment, to shame.

When I think of such men as Dr. W. L. Robinson of this city; Dr. R. S. Martin, of Stuart, Virginia, and numbers of other men of their type, who have now gone to their reward, I think of them as master surgeons. Along with their knowledge of surgery, they knew medicine, obstetrics, pediatrics, and in fact, were all round well trained physicians and surgeons, practical and common sense in every way, and relied upon themselves and their knowledge of medicine, rather than upon results obtained in the laboratory. They were pioneers in the surgical and hospital field, and their work today would be considered standard from a practical standpoint.

It took better surgeons to do good surgery thirty years ago than it does today, for surgery then was more complicated and harder to do, because an operative case only came to the hospital after all other means had failed and an inevitable death was in sight.

As I have said before, the small hospitals in the various towns can handle at least 90 per cent of the cases which apply for treatment, and the other 10 per cent can be sent to larger hospitals or clinics where diagnostic and operative facilities are more elaborate.

During the last quarter of a century, so many manufacturing plants have sprung up in the different sections of the State, that hos-

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pitals have become a necessity for the treatment of injured employees and the population generally, and when a community establishes a hospital, a better grade of trained medical men are naturally attracted to that section. (The best trained men of today hesitate to locate in a section remote from hospital advantages). In these small hospitals, industrial and automobile injuries are well treated. Cases of appendicitis, hernia, tonsils, gallstones and infected gall-bladders, etc., are cared for with much less expense and greater safety than could be obtained in larger hospitals, after a delay of many hours and a trip over rough roads in order to reach a larger hospital in a city. Therefore, I contend that the small, well-equipped hospital is a Godsend to any community, and should be supported and encouraged from every angle. It is through a Hospital Association that these hospitals can be helped and supported and made to conform to a city institution in every way, except possibly in size. The Boards of Supervisors in various Counties and the Councils of the Towns in which the hospitals are located should be taught to look upon these Institutions as a necessity and should contribute to their support in order that they may be made more efficient and do a greater good for the community. A hospital, even if it is small, is an asset to any community and should be the pride of its citizens. The people should be taught to feel the same interest in their hospitals that they do in their churches. A congregation in almost any town can get together from fifty to one hundred thousand dollars to build a new church, especially if another congregation in the same town has just completed one and that same town could not raise ten thousand dollars for a hospital. There are numbers of towns in Virginia with church investments of several hundred thousand of dollars and not a free hospital bed or a penny contributed to the support of a local hospital. This condition of affairs is not willful or deliberate, but due to the lack of thought on the part of the public.

This Association can and should do much to wake up the people and inculcate in them a spirit of true citizenship. They should be shown their duties, and when they see them as they are they will become more interested.

There is a notion among many people, and I am sorry to say some people who are connected with hospitals, that it is wrong to operate a hospital for profit. They say it is wrong to commercialize on sick people. Now, if it is wrong to sell sick people groceries or merchandise or other necessities of life for a profit, it is also wrong to sell them medical or hospital services for a profit. I see no reason why a hospital should not be managed, if possible, so as to make it pay running expenses, a legal interest on the investment, and the doctors in charge their professional fees. If running a hospital for a living and possibly a profit is not right, is it not equally wrong to practice medicine and surgery for a living and possibly a margin of profit? I am sorry to say that but few hospitals show a profit, but, there is no just reason why they should be a burden to the owners and operators.

I trust the Virginia Hospital Association may be a medium through which the hospitals of Virginia may work together for the mutual interest and advancement of each other. I am sure as much can be accomplished through co-operation of hospitals as is accomplished through co-operation in other lines. The larger hospitals could sell the smaller ones good servicable equipment, which they have outgrown or discarded, to the financial interest of both. They might be able to contract for supplies together and thereby save a considerable amount in the course of a year.

Another matter which should be looked into by this Association is the professional *deadbeat*. All over this country there are numbers of men who have reared families at no cost for medical or hospital services. They think it is legitimate and right to beat doctors for their services and to obtain hospital maintenance free. I do not refer to cases of true charity, but to the great mass of people who are strong and able to work, who own their own cars, pay their merchandise bills, buy whiskey and gas and travel the roads during their leisure, and at the same time get their medical examinations at free clinics, with drugs furnished. Many of these people are in better condition financially than the doctor who is giving his time and service free.

It is perfectly legitimate and right to do charity where charity exists, but there should be a line of demarcation and the man who is able to pay his doctor or his hospital should be required to do so. I believe it is wrong to pauperize any man by making him too many

gifts. If you once convince a man that he is a pauper and that all of his requirements should be supplied *gratis*, you have done him a great injustice which he will never outgrow.

My plan is to charge every man a reasonable fee and let him know what it is, and if he never gets able to pay it, he always owes it. Many people are poor, but have a lot of pride and self-respect and rebel at the idea of being classed as paupers. They do not accept gifts cheerfully and feel much better if leniency only is extended and they are allowed later to go to work and extricate themselves from their financial difficulties.

Now in conclusion, I want to say, as the first President of the Virginia Hospital Association, that the Association is only about eighteen months old, almost in its embryonic stage, but it is a thrifty youngster, full of pep and vim, capable of being nourished, trained, educated and developed into a great power for good in the hospital field, and as I turn it over to my successors at the end of this meeting, I bid you unlimited success. I hope to see it grow by leaps and bounds under the management of those who will follow me in my feeble efforts.

I desire to thank the members of the profession for the encouragement and support they have given me during the existence of this Association, and especially do I thank the readers of the papers on this occasion for their contributions to the success of this meeting.

PLEURAL COMPLICATIONS OF UPPER ABDOMINAL PATHOLOGY.

By CHARLES CARROLL SMITH, M. D., Norfolk, Va.

When one pauses to consider the intimate relationship of the abdominal and thoracic cavities, it seems rather strange that pathology having its inception in the one does not more often invade the other. The relationship between the peritoneum and the pleurae is no less intimate and these two structures have much in common and presumably should be susceptible to much the same organisms. They are all three large serous membranes and normally form closed sacs except for the small openings in the fallopian tubes in the female. The structure is the same, consisting of a layer of flattened endothelium over a subserous areolar tissue. That they are not contiguous is due to the interposition of the diaphragm, a muscular sheet composed of fibres radiating from the lower border of the thorax and from the upper lumbar vertebrae towards a central tendonous area, termed the centrum tendineum. It is pierced by the inferior vena cava, the oesophagus, aorta, and thoracic duct. The upper surface of the diaphragm forms the floor of the thoracic cavity and is in contact with the pleurae and pericardium, the latter being adherent to the centrum tendineum. Below, the diaphragm is largely invested by the peritoneum and is in relation with the liver, stomach, spleen, kidneys, supra-renal bodies, duodenum, pancreas, inferior vena cava and branches of the coeliac artery.

The lymphatics of the diaphragm form a rich network upon both its surfaces, that upon the peritoneal surface being especially well developed, and numerous vessels traverse the substance of both the muscular tissue and the centrum tendineum, uniting the network of the abdominal with that of the thoracic surface. Upon the thoracic surface the network is exceedingly fine and close-meshed in the region of the centrum tendineum being more distinct in the regions of the lateral leaflets. From this network branches pass outward parallel to the muscular fibres to unite with a series of anastomosing stems whose general direction is forward. Branches coming from the more peripheral portions of the diaphragm also empty into the stems, which carry the lymph forward to the diaphragmatic nodes, where it passes to the anterior mediastinal nodes. From the network of the lateral leaflets of the central tendon, collecting stems are also directed backward and medially toward the aortic opening which they traverse to terminate in the upper coeliac nodes.

It is to be observed that the nodes of the thoracic surface are for the most part situated anteriorly while the coeliac nodes, which may be considered as the principal nodes of the inferior surface, are located posteriorly. Both sets of nodes, however, received lymph from both surfaces of the diaphragm by means of the perforating branches which connect the upper and lower networks. The lower network is, furthermore, connected with the lymphatics of the more lateral portions of the peritoneum, and also with those of the liver, while the upper network makes connection with the lymphathic vessels of the pleurae.

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Stated in brief, the destination of the hepatic lymphatics is principally the hepatic nodes situated in the transverse fissure and the diaphragmatic nodes which surround the opening of the inferior vena cava. It is to be remembered that numerous communications exist between the superficial hepatic lymphatics and those which form the network of the abdominal surface of the diaphragm. These communications when considered in connection with the existence of the perforating branches explain the occurrence of pleuritis as a sequence of subphrenic abscess, infections of the liver, or the upper abdominal pathology.

Moreover, infections in parts so freely open to lymphatic drainage would almost inevitably lead to entrance of the organism into the blood stream and most certainly an organism with a predilection for the serous membrane of the peritoneum would find no more home-like a place to settle and propagate its species than the almost identical serous membrane of the pleurae. One other mode of entrance might suggest itself when we consider that the subserous areolar tissue of the peritoneum and that of the pleurae are but very slightly altered to form the external coat of the eosophagus and the adventitia of the aorta and other vessels traversing the diaphragm.

In view of such favorable conditions, it seems rather unusual that coincident pathology in these two cavities, the abdomen and the theorax, does not more often occur and equally surprising is the fact that there is such a paucity of literature on the subject. That such combined pathology does at times occur we are sure and our observations are borne out, though in the reverse direction, by the findings at autopsy in a large series of flu cases during the epidemic. Dunham noted the frequency of acute fibrinous perihepatitis, perisplenitis, and fibrinous agglutination of the stomach to the neighboring organs at autopsy of acute empyemata of flu origin.

Three rather interesting cases compiled from the surgical service of Dr. R. L. Payne, at St. Vincent's Hospital, were the incentive for this paper and I herewith wish to report these cases as briefly as is compatible with clarity.

Case 17665—L. B. S., white male, age 28, admitted September 9, 1924, discharged December 13, 1924. Stay in hospital 76 days. This patient, a robust young man, had a negative family history and his previous health had been excellent without exception. One month prior to admittance his illness began with acute abdominal pain in the left upper quadrant and was diagnosed kidney colic. The pain became less acute but more generalized, gastrointestinal disturbance then began to predominate, and a toxemia ensued which seriously impaired his mentality. At this time typhoid was suspected but Widal was negative as was also Wassermann. One week before entrance to hospital, patient had acute pain in upper right quadrant and began to show signs of jaundice. This state of affairs persisted until he fell into our hands; a day or so before this, however, his pain seemed to include the lower thoracic region and he had a slight cough. Nausea and vomiting were causing great distress. Physical examination showed that he had a distended abdomen with more or less general rigidity but with distinct tenderness over the gall-bladder and liver. The liver was somewhat enlarged, jaundice not profound but well marked of skin, sclera and mucous membranes. The right side of the chest was retracted, the percussion note was impaired over the entire right side. There was flatness of the right base. Temperature 100, pulse 120, respiration 30, patient was very toxic, irritable, and almost delirious. Urinalysis showed albumen two plus, bile two plus, number of fine and coarse granular casts. W. B. C. 17,000, polys 80 per cent. Wassermann and spinal fluid negative. Liver function test below normal. X-ray report, gall-bladder throws suspicious shadow. Suspicious shadows as of small calculus left lower ureter. The case was obscure. We suspected chest but could not get away from the biliary tract symptoms and laboratory findings. He ran a septic temperature for ten days with little or no change in the general condition or physical findings. Blood culture during this time was negative. Aspiration of the right chest on the 6th of October was negative, but on the 15th 400 c.c. of a rather thick fluid was obtained and two days later resection of the 9th rib on the right side and drainage of the pleura liberated a large quantity of thick foul smelling pus. Improvement was gradual but steady, digestive symptoms were still in evidence as was jaundice, but these gradually subsided along with the tenderness over gall-bladder and we were left with apparently just the empyema with which to deal. The cavity was irrigated daily

with 1-1000 gentian violet and after a rather prolonged convalescence the patient was discharged well on the road to recovery. The patient was seen only a few days ago and is in excellent health and has had no further trouble either with the abdomen or thorax.

Case 15995—Miss E. W., white female, age 38, admitted May 9, 1924, discharged July 22, 1924. Stay in hospital 75 days. Three or four days before admission this patient was taken with severe colicky pain in the right upper abdomen with tenderness over the gall-bladder. There was elevation of temperature, nausea and vomiting, and a history of rather long standing digestive disturbances with much distress from gas accompanied by belching. Diagnosis of bile tract infection was made and patient advised to seek surgical relief. There were no symptoms referable to the chest at this time nor on admittance to hospital.

The day after admittance patient complained of pain over lower costal margin on left side. Physical examination at this time showed a large well nourished woman acutely ill. The abdomen was distended with rigidity of upper recti more marked in the right. There was distinct and acute tenderness over the gall-bladder region and the liver was very slightly, if at all enlarged; distinct jaundice of sclera. Chest wall was thick, respiratory excursion limited and there was a restrained cough. Over the left lower lobe and base of the lung there was marked bronchophony and pectoriloquy with tubular breathing and fine rales and above this a friction rub. There was diminished resonance over this area. The right lung was apparently normal as were also the cardiac findings. Temperature 99½, pulse 110, of poor volume; respiration 18. Urinalysis-albumen two plus, bile trace, few hyalin casts. Analysis few days later showed very positive for bile. W. B. C. 25,000, polys 86 per cent. Ten days later 86,000, polys 93 per cent, then a gradual drop to 25,600 with polys 82 per cent just prior to operation. Progress—temperature reached 102 on 10th day with no marked change in physical findings, then on the 19th day dropped to subnormal with pulse accelerated to 140, and a rapid rise in respiratory rate to 38. Then began a period of extreme toxemia with septic temperature.

Left pleural cavity aspirated and 500 c.c. of slightly cloudy fluid withdrawn; four days later 1,400 c.c. of fluid withdrawn. Smears showed staphylococci but cultures showed no growth after 12 hours. Patient showed improvement, but one week later 300 c.c. of purulent fluid was aspirated and two days later the left 9th rib was resected and tube drainage instituted. The convalescence from that time on was slow and accompanied by fluctuations of temperature and drainage but was without incident sufficient to chronicle here.

Case 18251. This case is of interest from other angles than the one incorporated in this paper. The patient a young white woman had a general peritonitis of some days' standing and, as a complication, developed a bilateral empyema. All three were drained and she recovered. I was struck with the scarcity of reported cases of double empyema and at the time this case was in our hands could find little advice in text books or current literature as to the advisability and mode of procedure of instituting drainage into both pleurae. The few references I found all cautioned the operator to use all possible means to prevent collapse of the lungs, practically each one advising the use of some complicated pressure chamber which was not at our disposal.

Oschner says that he had operated only a few such cases and stated that it is important to operate in two stages, the side containing the most pus being chosen for the first operation and the second operation being postponed as long as the patient continues to improve. Our case was operated upon with a two day interval between the drainage of the right and left sides. The case report is as follows: Mrs. P. T., white female, age 29, admitted November 26, 1924, discharged February 13, 1925. Stay in hospital 80 days. Friday, November 22nd, patient had acute severe pain in epigastrium followed in three or four hours by nausea and vomiting. Vomiting persisted with severe colicky pain which remained localized in the epigastrium and right hypochondriac regions. The next day, patient was weaker and pain was diffuse over entire abdomen. Except for increasing toxemia and gradual decrease of vitality, condition remained unchanged until admittance, Thursday, November 27th, on which day she was operated. History states that patient had had gastric disturbance for four or five years, nausea, a feeling of fullness and a dull ache high in the epigastrium coming on about one hour after

eating and relieved by soda. She had been in the habit of taking soda to bed with her at night for relief of pain. Patient also had choking spells and attacks of colic beginning in epigastrium and right hypochondriac region, radiating to right scapula.

Physical examination showed distended abdomen with generalized tenderness and rigidity. Urinalysis—albumen two plus, number of hyalin and fine granular casts. W. B. C. 17,200, polys 90 per cent. Operative record states that there was a general peritonitis with so much free pus and fibrin in the abdominal cavity that it was difficult to determine whether it was a ruptured duodenal ulcer or appendicitis. The appendix was removed. Pathological report on appendix states that external surface showed rough hemorrhagic spots covered by greyish exudate. Diagnosis, acute gangrenous appendicitis with general peritonitis.

The author is of the opinion that it might just as well have been a ruptured duodenal ulcer with changes in appendix due to the general peritonitis since the description of the appendix states that most of the pathology was on the external or peritoneal surface. The patient was operated on November 27, 1924, and, as one would judge from the pathology, her convalescence was anything but smooth. Her condition was grave and the prognosis looked decidedly bad, but in a week or ten days she was improved to such an extent that we were at least hopeful. The first sign of impending pleural trouble was on the 16th of December, when the patient complained of shortness of breath and the medical consultant reported flatness over both lungs posteriorly, with absence of breath sounds. The patient had such a desperate abdominal condition, we were loathe to lay much stress on the finding and made vaginal examination for possible pelvic abscess but found no bulging or masses. Blood cultures negative, W. B. C. 12,800, polys 72 per cent. The patient did not seem to improve though she showed very little change for worse until January 2, 1925. She began to grow weaker, pulse began to climb and examination of chest showed that the area of flatness was considerably larger. Both right and left pleurae were aspirated and a thick purulent fluid obtained, only about 100 c.c. from each side, the fluid being too thick to run through needles. On January 5th the right side was drained under local anesthesia, intercostal drainage being used. A small groove was taken out of the superior border of the 9th rib and a snug fitting tube inserted, care being taken to make the procedure as near a closed method as possible. On the 7th the tube in right side was clamped off and the gauze around tube heavily coated with vaseline to render the right side air tight and intercostal drainage with trocar-cannula and large size catheter was done on left side. There was no embarrassment of respiration or other untoward symptoms and at no time was there any difficulty in irrigating both pleurae with 1-1000 gentian violet, though we were careful not to have both filled at the same time. We found it feasible to fill one side and allow the solution to stay in for an hour, then let it drain off before repeating the procedure on the opposite side. Later on, after adhesions had fixed the lungs and a tolerance for the irrigations had been established, the irrigations were completed at one dressing.

The last case is obviously one in which a purulent pleuritis followed a peritonitis, which either began in or invaded the upper abdomen. Whether this complication ensued from direct transmission through the lymphatics or was the result of a blood borne organism with a predilection for serosa, we have no definite proof and little in circumstantial evidence other than the fact that at all times the blood culture was negative.

In view of this case and when we consider the history and symptoms of the other two, are we justified in supposing that they began as infections in and around the biliary tract and because anatomic conditions were favorable secondarily invaded the thoracic cavity with resulting empyemata? On the other hand, could they have been obscure thoracic infections such as small, deep-seated lung abscesses that caused grave toxemia almost to the point of fatalities and were thwarted from such an end by rupture into the pleurae and manifestation of definite physical signs of empyema? At any rate, I assure you that all three were sufficiently obscure to call forth all the means at our demand before we successfully solved them.

805 *Medical Arts Building.*

When things go wrong, why just be glad
They have happened twice as bad.

—Selected.

DR. JESSEE BENNETT, (1769-1842) Pioneer Surgeon. DR. AQUILLA LEIGHTON KNIGHT, (1823-1897) Humanist.

Old Virginia Doctors: "Who saw life steadily and saw it whole."

By JOSEPH LYON MILLER, M. D., Thomas, West Va.

On the 14th day of January, one hundred and thirty-five years ago, a young pioneer physician in the Valley of Virginia performed an operation that, had it been reported at the time, would have assured him a place of honor in the medical history of America.

Believing that, even at this late date, the case should be presented to the profession in Virginia, I am now offering this account of it, hoping the evidence will be sufficient to warrant belated recognition being bestowed upon the memory of

DR. JESSEE BENNETT, WHO DID THE FIRST SUCCESSFUL CESAREAN SECTION IN AMERICA.

The first appearance in print of this case was in 1891 in The History of The Great Kanawha Valley, Vol. II, page 265. The chapter on the medical history of the Valley was written by Dr. A. L. Knight, who knew Dr. Bennett well, and had his information from two persons present at the operation. In addition to my interest in the case from the standpoint of medical history, I have a further interest due to the fact that Dr. Bennett spent the last forty-five years of his life in my native county of Mason and for many years was my grandfather's family physician; Dr. Knight was also a native of Mason and a lifetime friend and physician of my father. The fuller details of the operation were given to me personally by Dr. Knight, as it was not suitable to publish them in a popular local history, and check with the traditions held by Dr. Bennett's descendants who are prominent citizens of the Great Kanawha Valley. From these sources I have the following account of Dr. Bennett and the Cesarean section he did on his own wife on the 14th of January, 1794, in Rockingham County, Virginia.

Jessee Bennett, of Norman-French ancestry, was born July 10, 1769, at Frankfort, Philadelphia County, Pennsylvania, and died at his home "Riverview", Mason County, Virginia, July 13, 1842. After reading medicine with a physician in Philadelphia, he completed his education at The University of Pennsylvania, and is said by a contemporary to have been "a thorough anatomist and most excellent surgeon". In 1792 he settled in the Valley of Virginia to practice his profession, and on the 8th of April, 1793, was married to Elizabeth Hog, daughter of Maj. Peter Hog, a graduate of the University of Edinburgh, a prominent officer in the French and Indian war, pioneer lawyer of the Valley, and first clerk of Rockingham County, from 1777 till his death in 1782.

THE OPERATION

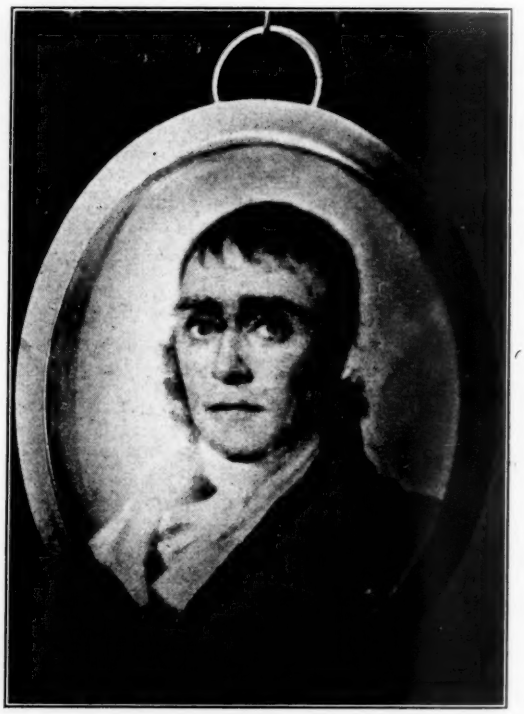
In due course Mrs. Bennett came to her first and only confinement. Owing to a contracted pelvis, or other obstruction not known definitely, assistance was called in the person of Dr. Alexander Humphreys, of Staunton. After consultation and an unsuccessful attempt at a forceps delivery it was decided that but two courses were open to them—either craniotomy or Cesarean section. Mrs. Bennett thinking she was going to die anyway insisted that the child should be saved, so, over the protest of Dr. Humphreys, preparation was made to do the operation, which at that time was one almost unheard of on the living mother anywhere in the world. Dr. Humphreys refusing to undertake so formidable an operation, Dr. Bennett proceeded with it himself. The details related by those present are: Mrs. Bennett was given a large dose of laudanum which, with her previous weakness quickly put her to sleep. She was then placed on a table made of two planks laid on a couple of barrels, and with two negro servant women to hold her, Dr. Bennett with one quick sweep of the knife laid open the abdomen and uterus. Enlarging the opening in the uterus with his hands he quickly lifted out the child and placenta. Before closing the wound, which he did with some stout linen thread used in making heavy clothing, he remarked "This shall be the last one" and proceeded to remove both ovaries, or in the language of one of the witnesses "he spayed her". Much to the surprise of everyone, both Mrs. Bennett and the child, a daughter, survived, Mrs. Bennett dying many years after their removal to Mason County and the daughter at the age of seventy-seven in

XUM

1871. The account of the operation was related to Dr. Knight by Mrs. Bennett's sister, Mrs. William Hawkins, and one of the negro women, both of whom were in the room all during the operation.

Before proceeding with the account of Dr. Bennett's later years, I think it best to state more fully Dr. Knight's connection and interest in the Bennetts. About a mile from the Bennett home on the Ohio River lived the Knights, friends and patients of the old doctor. Though young Knight knew Dr. Bennett well and was nearly twenty years old when the old doctor died, he naturally had never questioned him regarding the unusual manner of his daughter's birth, though he knew of the case from neighborhood gossip; but, as soon as he had finished his own medical education a few years later, he proceeded to satisfy his curiosity by getting all the information possible from all then living who knew about it. These included not only the daughter born by the operation (at this time the wife of Dr. Enos Thomas), but fortunately also the two eye-witnesses named above. When Mrs. Hawkins was asked if she knew why Dr. Bennett had never reported the case to some medical society or magazine, she said that she had heard him say that "no strange doctors would believe that operation could be done in the Virginia backwoods and the mother live, and he'd be damned if he would give them a chance to call him a liar." That on another occasion she heard him say that "no doctor with any feelings of delicacy would report an operation he had done on his own wife." At this time a Cesarean section with living mother and child were practically unknown anywhere in the world, even in the greatest medical centers. It antedates by thirty-three years that of Dr. John Richmond at Newtown, Ohio, which is given credit as the *first* in America. The oophorectomy done by Dr. Bennett preceded by seventy-eight years that of Dr. Robert Battey, of Rome, Georgia, who is given credit as the first to advise and remove non-diseased ovaries. It even precedes McDowell's famous ovariotomy by fifteen years. Newtown, Ohio, being less than two hundred miles away from Mason County affords speculation as to whether Dr. Richmond may not have known Dr. Bennett, or at least have heard of his operation and its success, and from them drew courage to proceed with his own when the necessity arose.

In 1795 Dr. Bennett joined the army as a surgeon in the "Whiskey Rebellion", and two years later, in company with his wife's brother, Thomas Hog, and sister Mrs. Nancy Hawkins and their families, removed with his family to settle on a tract of nine thousand acres of land granted to his father-in-law, Maj. Peter Hog, on the Ohio River about six miles above the mouth of the Great Kanawha. At this time he was the only doctor in a territory along the Ohio and Kanawha rivers for fifty to a hundred miles from his home, and so great was his reputation that even after competition came in he was still called far and wide, particularly in all surgical cases. In 1804 when the new county of Mason was cut off of



DR. JESSEE BENNETT (1769-1842)
Miniature owned by his great granddaughter, Mrs. Mary Shaw Cargill.

Kanawha County, Dr. Bennett was one of the justices of the first court, major in the county militia, and in 1808 and 1809, in company with my own great grandfather, Col. John Henderson, represented the county in the Virginia

Assembly. In the War of 1812 he served as surgeon in the 2nd Virginia Regiment. Aaron Burr tried hard to persuade him to join his expedition and to turn over all the arms and military stores of the militia. This caused the old doctor to be summoned to Richmond as a witness against Burr, and while there he had his miniature painted, which is reproduced here and is at present owned by his great granddaughter, Mrs Mary Shaw Cargill, of Winfield, West Virginia. He was a small active man, with reddish hair, and it is said had the temper which usually accmpanies it. Many interesting anecdotes have been handed down regarding the old doctor in his practice, and his sporting proclivities as a game hunter, and owner of the first race horses in that section of Virginia. To relate many of these would prolong this paper too much, but perhaps one or two will not be out of place.

He delighted to relate an experience when he was bested in an obstetric case by a "Thompsonian" or "yarb doctor". These woods doctors were audacious in proportion to their ignorance of pathology, and would undertake to cure anything from pneumonia to cancer with their roots and leaves. On this occasion one of the regular profession several miles away in Mercer's Bottom had a difficult labor case and sent for Dr. Bennett in consultation. After examination he advised forceps, and while they were on the front porch of the home discussing it they saw "Old Root and Yarb", as he was known, coming down the road carrying a huge pair of saddlepockets swung over his shoulder. For the sake of a little amusement it was proposed they call him in and state the case and ask for his advice. When this was done he replied "well gentlemen have you sneezed her?" "Before using them hurtful things I'd sneeze her." Feeling that he could do no harm they said "Suppose you try it", which he did by the aid of snuff from a large old pewter box he carried. To their great surprise, a few minutes later a new citizen was claiming his rights with a vociferous voice, and "them hurtful things" were not needed.

Dr. Bennett's lack of orthodox religious belief is the foundation for another good story. This lack, however, did not deter the clergy of all denominations frequently accepting his hospitality, doubtless each one hoping to land the old doctor in his own particular fold. One night in June, 1815, the pastor of a neighboring church in riding his circuit stopped at Dr. Bennett's. At this time the Ohio River was quite high, and further rain during the night backed it up in Oldtown Creek till it was unfordable. As it was necessary for the Rev. Mr. Smithers to proceed on his journey the next morning, Dr. Bennett took him on behind him on his big bay horse and swam the creek. On the opposite bank they met an old servant of Col. Charles Lewis who lived on that side and Dr. Bennett said to him, "Well, Kyer, if old Tom had sunk and drowned Mr. Smithers and me which one would Old Nick have grabbed first?" "Marse Smithers", laughed Kyer, "caise he aint sho' o' him an' he don sho' o' you now sah."

A few years after settling on the Ohio Dr. Bennett replaced his first log house with a substantial brick residence still standing, and I still have many pleasant recollections of the unstinted hospitality of "Riverview" when owned by the old doctor's nephew, Mr. Walter Hardin Hog, whose string of fine horses were known on many of the race tracks of West Virginia, Ohio and Kentucky.

Dr. Knight

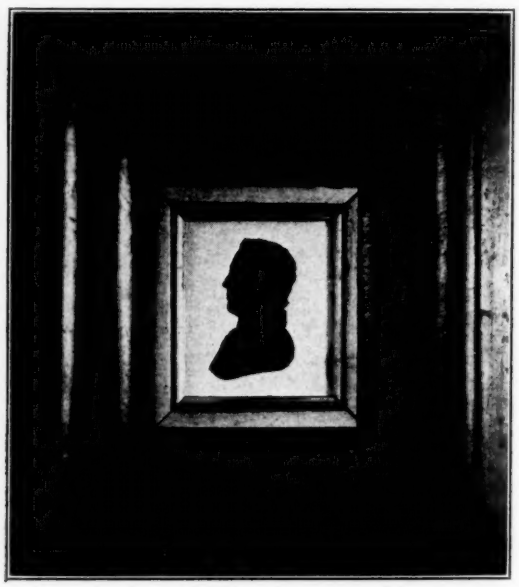
Since at this late date the account of this first successful Cesarean section in America must stand largely upon the veracity of the doctor who gathered the facts and first reported it, I believe that an account of the life and character of Dr. Aquilla Leighton Knight will not be out of place.

He was born on Christmas day, 1823, about a mile from the home of Dr. Bennett. At the age of fourteen he had acquired all the knowledge the local teachers could impart, in addition to doing a vast amount of outside reading, or as the Hon. John Hall, a wealthy neighbor remarked in later years "Dr. Knight read every book in my library before he was fifteen years of age." His father then was fortunate enough to secure as a tutor for him an Englishman named Alexander H. Porter, a graduate of Cambridge University, England, and later a professor in Oxford University, Ohio. The two years' study with Prof. Porter included Latin, French, German, higher mathematics and English, and he had so crowded those two years that his preceptor declared him as proficient as any collegiate with the degree of A. B. After teaching for four years he read medicine with Dr. Daniel Couch, of Point Pleasant,

XUM

later entering the medical department of Western Reserve University at Cleveland, Ohio, from which he was graduated in March, 1850, second in a class of seventy-six. Returning home he built up the largest practice in that part of the Ohio valley by the time the Civil War came on. In July, 1861, he entered the Confederate army as a surgeon and, after being in several battles, was taken prisoner and confined in the Wheeling jail for nearly a year, then released on parole till the close of the war. The war swept away many thousand dollars' worth of slaves and other property leaving him only his home but, like the rest of the Confederates, undaunted, he started to rebuild his shattered fortunes.

Dr. Knight's student days did not end when he left college, but all his life he studied and read widely, not only in the literature of his



DR. A. L. KNIGHT (1823-1897)
Silhouette owned by the author.

profession, but also in the sciences of chemistry, botany, astronomy and geology, the classics, and medical and general history. His most prominent natural talent was for drawing and painting which afforded him greater pleasure than all the rest. He developed this so highly that several of his paintings of a historical character were hung on the walls of the state capitol at Charleston and were lost in the fire that destroyed that building a few years ago.

In speaking of Dr. Knight, Dr. Robert Hamilton, himself a well known physician of the Kanawha Valley, said: "Dr. Knight will have much to answer for; nature has given him the full ten talents, while some of us have but one, and others but four or five at most. Why, he is artist, poet, mechanic, musician, scientist, linguist, and regarded by all who know him, as I do, as one of the most skillful physicians and surgeons between Pittsburgh and Cincinnati." He was an active member of the Mason County Medical Society, The Meigs County (Ohio) Medical Society, The Ohio Valley Medical Society, and the West Virginia State Medical Association, and two or more times was president of the first three and vice-president of the latter.

It is with pleasure and happy recollections that I here pay tribute to the memory of Dr. Aquilla Leighton Knight as one of the finest men I have ever known. A splendid specimen of that fine type of old Virginia gentlemen physicians. His wide acquaintance with the world's best literature, and sympathetic understanding of humanity in its various phases as a doctor sees it in many years' practice, made him one of the most delightful companions and mentor. To the inspiration derived from him more than to anyone else do I owe my love for the cultural side of medicine and its history. I cannot close without quoting something he said to me many years ago in his office as I was leaving to enter college. "I have won many triumphs, but the grandest has been the conquest of myself."

The lives of such men as Dr. Bennett, Dr. Knight, and Dr. Mettauer, in their restricted environment as country practitioners in Virginia, though without the fame that came to some of their contemporaries as McDowell, Long and Sims, make us proud of the old country doctors of the South.

UNUNITED FRACTURES.

By M. J. PAYNE, M. D., F. A. C. S., Staunton, Va.

An ununited fracture may be defined as a fracture in which bony union is absent, or doee not occur; that is, a fracture in which union is not effected at all, or in which the union is not bony. There is then a failure of consolidation and proper ossification. It is proper to include all cases of fractures as ununited in which fibrous or cartilaginous union occurs. Delayed union is a retardation

of the reparative process. What time limit then shall be established in cases of delayed union in order that the case in question may be established or defined as one of ununited fracture? It is safest to class all fractures as ununited in which bony union of the bone in question does not occur within the time limit for normal bony union. Normally, ossification is completed in from three to six weeks.

The varieties of non-united fractures may be described as:

1st: Absolute non-union. That is in fractures in which no attempt at all is made at repair. This rarely occurs except when some definite bone disease co-exists, e. g., sarcoma, osteomalacia, and in very debilitated patients, and when no attempt has been made to maintain fixation of the bony parts.

2nd: Fibrous union when the development of a more or less firm mass of connective tissue, without ossification, forms as a band between the ends of the bone.

3rd: Pseudoarthrosis, or false joint, in which the bone ends of the fragments are covered by bone or cartilage, and are so altered in shape that a ball and socket type false joint is formed, having a surrounding fibrous tissue capsule, and having an adventitious bursa comprising a pseudo-synovial.

Disunited fracture is the term applied to a fracture, a rare condition, in which a fracture which had been firmly united becomes separated again. It may be seen when an individual develops some extremely debilitating disease closely following the fracture, such as scurvy.

Anatomy of Ununited Fractures. An ununited fracture may result from any variety of fracture. A greater liability is seen in multiple, compound, comminuted, extensive fractures, and in fractures in which the bone ends are crushed or bony mass is lost. The types of ununited fractures may be described as: The gap fracture which is seen in the case of the radius, ulna, and tibia when the companion bone has remained intact. The bone ends are usually rounded or conical, the bone substance is much atrophied and consists of a thin shell of bone containing fatty marrow. Between the bone ends may be found connective tissue, bone debris, and foreign bodies. The pseudoarthrosis is found in non-union of the humerus and the femur. The bone ends are densely sclerosed and present osteophytic growths. The medullary cavity is obliterated for a considerable distance, and the surface of the ends of the fragments is invested with fibro-cartilage. Between the bone ends may be found a mass of connective tissue, forming a pseudo-synovia having glary fluid contents. The fragile atrophic bone in the gap fracture presents a marked contrast to the dense sclerosed bone of the pseudoarthrosis.

Causes. The causes may be local and constitutional. Local; loss of substance, interposition of soft parts, sclerosis of the bone, overextension, ill-advised plating, wiring, want of approximation of fragments, want of rest, meddling examinations on part of attendant and patient (recently, a patient removed dressings at will). There may be poor blood supply, the nutrient artery torn, or the vein thrombosed. Defective innervation, bone diseases, improper splinting, tight bandaging, infected compound fractures, extensive multiple fractures, are other local causes. Constitutional malnutrition is the most common cause. Sometimes non-union results without any assignable cause. A fracture may unite, then separate again due to absorption or fracture of the callus. Refracture at the site of a former recent fracture may result in non-union or a much delayed union.

The interposition of soft tissue between the fragments is the most common local cause of non-union. Complete fixation of the fragments at first limits the formation of the provisional callus, and greatly enhances the occurrence of bony union of the bone. Mobility of the fragments increases the provisional callus and the connective tissue formation in direct consequence, and therefore increases the liability of non-union. At times months are required to effect perfectly firm bony union.

Frequency. Ununited fractures are not very common, but are more frequent than formerly and ordinarily supposed. Treves states that one in eighty cases results in non-union.

In view of the large number of liability and malpractice claims growing out of injuries attended by fractures alone, the subject becomes of great importance to the industrial and railroad surgeon. Furthermore, in view of the occurrence of non-union, and delayed union, the importance of the subject cannot be too greatly estimated.

According to Keen's Surgery, the relative

XUM

frequency of non-union in the long bones exclusive of the fibula, compiled from sixty consecutive cases, is as follows: femur 26.4 per cent; humerus 22 per cent; radius 12 per cent; ulna 12 per cent; radius and ulna 5 per cent; tibia 6.6 per cent.

Briefly, though less acute symptoms and signs are essentially those of a fracture without crepitus, pain on active motion in the region of the fracture, a number of weeks after the occurrence of the fracture, suggests non-union. If tenderness is also present, non-union is highly probable. If with pain and tenderness there is a marked thickening from callus, non-union is certain. According to an article appearing in the *British Medical Journal*, marked thickening and infiltration of the overlying soft tissue will be observed in connection with the foregoing. The X-ray examination should be conclusive.

Prognosis. Unless there has been grave infection or great bony loss or changes, with suitable treatment satisfactory results should occur. In malignant disease and in grave constitutional diseases, the prognosis is unfavorable.

Treatment is mainly preventive. Secure rest to all fractures immediately or as soon after the injury as practical. Rest includes proper fixation and proper reduction. Maintain rest for a suitable period of time. Over-extension by too great traction is as hurtful as lack of extension. The X-ray is absolutely essential in order that a proper understanding of the position of the fragments may be obtained. It is well also to recall that many ununited fractures have their origin in unwise operative interference. John H. Gibbon in *International Journal of Medicine and Surgery*, October, 1924, says: "Up to the time of the great war, there had been developing for years a tendency to operate upon and plate most simple fractures, a pernicious tendency which it seemed nearly impossible to stem, but with the enormous experience afforded by the war, it was easily shown that this method of treatment should be greatly curtailed and we passed back to the use of our brains and revived the mechanical and anatomical knowledge in the treatment of fractures which, for a time, many of us had lost in our craze to apply a plate."

The patient's general health should first receive most careful scrutiny and attention. It is well to exercise considerable patience with all cases of non-union, before resorting to operative measures. When operative measures become necessary select the simplest possible procedure. Avoid extensive plating. Compound fractures should receive very great care to prevent infection and secure rest to the parts. Exercise every safeguard to preserve the periosteum from damage, especially of the fragments.

Conclusions: Fractures furnish a large percentage of industrial and railroad injuries. Damage suits, workmen's compensation liabilities, as well as malpractice suits, all furnish problems of mutual interest and importance to the employee, employer and the surgeon. The injured should have fully explained in all cases the nature of the injury and the probable outcome. Careful X-ray examination for diagnosis, at the time of the reduction and on discharge of the patient, are essential. A careful case history, including a searching physical examination, blood Wassermann, and urine examination, and progress notes from day to day, are of great importance. The complete record will generally furnish the legal security to all parties concerned. Criticism or discussion which questions the propriety or correctness of former procedures in any fracture case, intended to reach the ears of the injured, may be the source of later damage suits, either against employer or surgeon. It would be wise to fully standardize the treatment of all fractures.

Medico-Legal. Of all fractures occurring in the United States at least 85 per cent have a medico-legal bearing. In the commercial world, including manufacturing industries, at least 60 to 65 per cent of all injuries are attended by fracture of one or more bones. In railroad injuries it is said that the percentage is about 90 per cent, and in serious automobile accidents the percentage may be even greater.

Unless the condition is due to improper surgery, the point will not arise in the ordinary damage suit. The surgeon will testify merely that the disability is permanent and that fact will simply go to increase damages.

If the condition is due to improper surgery and not to the accident, the condition in itself cannot be the basis of recovery from the company unless it is alleged in the pleadings and proved that the surgeon was incompetent and that the company knew he was incompetent when it employed him. However, the latter

case will not occur except where there is no proof of negligence as a proximate cause of the original injury.

If non-union occurs and the company, industrial or railroad, were negligent, then the skill or lack of skill of the surgeon is immaterial. If non-union occurs and it is shown that the company's negligence is not the cause of the accident, then the question of the skill or lack of skill on the part of the surgeon may be pertinent. If plaintiff alleges, and has evidence to support his allegations, that the surgeon was responsible on account of lack of skill and that the company knew or ought to have known that the surgeon was incompetent or careless, then, and in that event, recovery may be had against the company.

The cause of non-union as related to the patient himself is a matter for the jury. An ununited fracture in the law relating to workmen's compensation usually means a permanent disability and large fixed payments. In employer's liability cases and damage suits for malpractice, the amount of the recovery is fixed by the jury.

A patient may take or accept a bad deformity with considerable loss of function as the natural or expected consequence of the injury, but a non-united fracture "will out" and will tell its own genesis, and will not be accepted by the patient as a natural or expected consequence.

Nothing original, nor distinctive is claimed in this resume. The sole object is to bring to your attention a consideration of a most important subject.

SOME PRINCIPLES OF MINOR SURGERY.*

By CHARLES BRUCE MORTON, M. D., University, Va.
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Introduction.

It is difficult to draw a clear distinction between minor and major surgery. Minor surgery, as considered in this paper, however, will refer particularly to that surgery which may be practiced in the physician's office.

By far the greater amount of attention has been given to major surgery, that branch of the art which, in the present day of large clinics and hospitals, can be practiced satisfactorily and safely only in a hospital. Minor surgery, the less spectacular of the two, has been relegated to the background and its problems left too often to those who are not always familiar with the soundest surgical principles and advances. In the current journals comparatively little appears relative to the problems of minor surgery as such. This seems unfortunate, for, not infrequently, the poorly or unintelligently treated case of a minor character may progress to such a degree of severity that some major surgical procedure becomes necessary and life itself may be endangered. This is especially true of certain cases of infections and malignancies.

In the limited space of this paper I shall attempt to recall to your attention only a few of the more important principles and practices of surgery, minor surgery in particular. Many of them are obvious and rather elementary but are necessary to a discussion of the subject. I shall draw freely from the methods found of greatest value in the conduct of the Out-Patient Surgical Clinic of the University of Virginia Hospital.

General Surgical Principles.

Surgery as we know it today was made possible by the discoveries of Pasteur and the application of this information by Lister. Antisepsis came first and later asepsis. Ochsner defined these words as follows:

"Antisepsis is based upon the knowledge that suppuration and inflammation occur only in the presence of micro-organisms in the tissues involved and upon the supposition that these micro-organisms should be destroyed by the introduction of some substance or combination of substances which has been demonstrated to possess the power of destroying micro-organisms or of inhibiting their growth or their power of reproduction to a sufficient extent to enable the tissues to destroy them.

"Asepsis attempts to accomplish the same result by keeping wounds free from micro-organisms to a sufficient extent to enable the tissue to destroy the very small number which may obtain entrance into the wound, notwithstanding any precautions that may be taken."

As commonly used, the term antisepsis refers to the treatment of infected or potentially infected wounds and asepsis to the management of surgically clean wounds, those usually made by the surgeon.

A thorough knowledge of the uses and limi-

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tations of antiseptics is important. Bacteria present in wounds must be dislodged, destroyed or inhibited but not at the cost of destruction or injury to the tissues harboring them. Destruction of tissue may leave a sloughing surface and defeat the very object of the treatment by preparing a culture medium in which organisms may grow protected and unhampered. Antiseptics, when properly chosen and carefully employed, help the tissues to combat infection and heal themselves. That the healing process is an inherent characteristic of tissue was recognized by the ancients. Stillman in a monograph on Paracelsus quoted: "The nature of the flesh has in it an innate force which heals wounds. Therefore the surgeon should know that it is not he that heals but the force in the body. Therefore, he who can protect and take good care of wounds is a good surgeon."

In aseptic surgery the chief problem is the prevention of infection. Micro-organisms may be introduced in wounds during surgical procedures in two ways. There is air-borne infection and contact infection. One need only glance at a beam of light shining through a darkened room to see the myriads of dust particles floating in the air at all times. Experience has shown, however, that the danger from air-borne infection is small compared to that from contact infection. Rigid technic must be observed in regard to hands, gloves, instruments, dressings, and preparation of the field if the occurrence of infected wounds is to be avoided. Every physician of today provides himself with antiseptic agents and with the necessary equipment for the sterilization of instruments and supplies. Incessant and careful watchfulness, however, is necessary to check the efficiency of these facilities.

An important adjunct to surgical cleanliness is gentleness in handling living tissues. The careless handling and traumatization of wounds kills cells, thereby retarding the healing process and predisposing to infection by forming a culture medium in which bacteria may live and reproduce. Many sluggish and infected wounds may be traced to such roughness or to the aimless mauling of tissue by the operator who dawdles along while he is making up his mind just what to do.

This suggests the necessity of accurate diagnosis of the patient's condition and a thorough knowledge of the principles and technic of surgery. The small lump, the sluggish ulcerated area, or the little mole may not be so simple as superficial appearances would indicate. A careful general examination may reveal serious impairment of a primary or secondary nature or some other information that may change entirely the aspect and conduct of the case.

Finally, the study of all tissue removed by the surgeon offers a very important service and protection to patient and surgeon alike. All tumors, glands, moles and other suspicious tissues should be appropriately preserved, sent to a competent pathologist and examined microscopically.

Anesthesia.

In minor as well as major surgery the selection of an anesthetic is important from the standpoint of both the patient and operator. The patient has a right to protection from the infliction of needless pain, and the operator should not be handicapped by the vocal protestations and physical writhings of a patient who is suffering.

Local anesthesia finds what is possibly its greatest field of usefulness in the management of minor surgical conditions. Novocain, cocain, stovain and other similar drugs may be used in local infiltration, regional blocking or nerve blocking. Sacral, parasacral and spinal anesthesia may be used but are employed chiefly in major surgical procedures.

Local hypodermic infiltration of the tissues with one of two per cent solution of novocain is used more frequently than any other method when clean tissues are to be incised, as, for instance, in the excision of cysts, moles, other small tumors, and so forth. For convenience, the drug may be obtained in tablet form and a fresh solution made up in sterile water each time that it is needed.

When infected areas, such as furuncles, carbuncles and the like are to be dealt with, however, local infiltration of the tissues is not only dangerous but inexcusable. Such infiltration distends the inflamed tissue, predisposes to sloughing and, furthermore, is very apt to spread the infection. For the small infected area that requires incision, "freezing" of the site with the spray from an ethyl chloride cylinder is sometimes sufficient. For the larger lesion, nerve blocking or regional blocking of the area with novocain injections may be

practicable. In the latter method a "ring" of anesthesia is made well away from the infected area, thereby blocking sensory impulses from the circumscribed area. Where the location or character of the lesion makes this inadvisable, general anesthesia is usually necessary.

Of the general anesthetics, nitrous oxide with oxygen is the most useful, if obtainable. Very simple equipment will suffice for the short period of anesthesia generally required. Analgesia rather than anesthesia is preferred. Induction is rapid and recovery speedy. Ethylene is equally useful, though constant care must be taken to prevent explosion. A few whiffs of ethyl chloride may be employed to advantage. Ether and chloroform need no comment other than to say that their effect is more prolonged than is usually necessary and that the use of chloroform is attended with definite danger to certain patients.

Morphine is a most important agent for the relief of pain. Prompt administration of this drug is a godsend to the patient with a severe traumatic injury and in a state of shock.

Management of Clean Cases.

Bearing in mind the general principles of surgery and anesthesia referred to already, I shall consider certain individual problems more in detail. The first is the clean case, that in which the field of operation is presumably clean at the onset and in which strict asepsis must be maintained throughout. The surgeon's hands, gloves, instruments and dressings must be prepared as carefully as for a major surgical procedure. The field of operation should be cleansed with benzine, alcohol, and an appropriate antiseptic agent and then isolated with sterile drapings. Tincture of iodine is a convenient antiseptic for the skin. Its preeminence is challenged by mercurochrome which has the advantage of being less irritating. If the proper solution is employed, it is equally efficacious. It is prepared by dissolving 2 grams of mercurochrome in 35 c.c. of water, adding 55 c.c. of 95 per cent alcohol, mixing and then adding 10 c.c. of acetone. This makes about 100 c.c. of a 2 per cent solution which penetrates the skin much more readily than the aqueous solution.

Incisions should be made with a sharp knife, hemostasis secured carefully, dead spaces avoided and the skin accurately approximated for minimum scar formation. Sterile dry dressings are used. Stitches may be removed from the third to the eighth day depending on the site and character of the wound. In order to guard against secondary infection, stitches should be painted with iodine or mercurochrome before removal.

Management of Potentially Infected Cases.

Under this heading come most of the cases of injury in street and industrial accidents. The injury may be a bruise, hematoma, superficial abrasion, punctured wound, incised wound, lacerated wound, burn, or something more serious, requiring a major surgical procedure ultimately but at the moment in need of first-aid treatment until hospitalization can be secured. Virulent infection or other serious trouble may be averted by careful and intelligent treatment administered promptly.

Careful mechanical cleansing with soap and water is a good preliminary measure in most wounds. The application of novocain solution to wound surfaces is useful in deadening pain. Morphine administered hypodermically is very valuable. Shock may be so slight as to be controlled by having the patient sit with the head well down between the knees. It may be sufficiently great to necessitate the Trendelenburg posture, application of heat externally, stimulation with hypodermics of caffein and adrenalin, enemata of strong coffee, intravenous injection of saline or glucose or even transfusion of blood.

Bruises and hematomas usually respond well to cold applications for twenty-four hours, followed then by warm applications. Prompt draining of a hematoma at the base of a nail may prevent loss of the nail but there is some danger of infection in the devitalized tissue. Superficial abrasions, if relatively clean, may be treated with mercurochrome and dry dressings to promote scab formation. When much soiled, a wet dressing of saturated solution of boric acid for twenty-four hours, followed then by a dry dressing, frequently prevents suppuration.

All wounds after careful cleansing should be searched for foreign bodies, large bleeding vessels, and, if in an extremity, for severed nerves and tendons. Strong antiseptics with consequent devitalization of tissues should be avoided. Milder antiseptics, such as mercurochrome, may be used to advantage. Wet boric acid dressings are valuable in keeping the

tissues soft, promoting drainage and facilitating the removal of dressings the next day. Only in rare instances should sutures entirely close such wounds. Allowance for drainage and swelling should be made. Sutures put in too tightly frequently cut through or cause sloughing.

Punctured wounds should be opened as much as possible, drainage should be instituted, and wet dressings employed for a time. Because of the danger of tetanus infection in such wounds, it is safest to administer tetanus antitoxin routinely. In many cases where the wound is large and tissue destruction widespread, safety is served by administering antitoxin for B. Welchii, the organism responsible for "gas gangrene."

In lacerated wounds, tissue tags should be trimmed away to prevent sloughing. The application of a 2 per cent novocain solution to the wound surfaces is useful to deaden pain. The general measures for the care of wounds already mentioned must be employed with meticulous technic. The dressings best suited to such wounds are usually wet, moistened with a saturated solution of boric acid or magnesium sulphate. The dressing should be changed in twelve or twenty-four hours at the most. After a day or two a dry dressing or one coated with ointment may be used to advantage. In some cases of lacerated wounds, especially fingers and hands crushed or torn by machinery, sterile vaseline makes a very soothing dressing. It obviates the necessity for frequent change and the apparent encapsulation of bacteria by the oily substance seems to render them inert. During the World War the value of Dakin's solution in extensive wounds was strikingly shown. The solution, however, must be freshly prepared and adjacent skin surfaces must be protected from the solution by cloths impregnated with vaseline or some similar oily substance.

Superficial burns may be satisfactorily treated with "carron oil," boric ointment or some similar oily dressing. Deeper burns seem to respond best to the tannic acid treatment devised by Davidson. The area is dressed with sterile dry gauze and the dressing then saturated with a freshly prepared 2.5 per cent solution of tannic acid. Dressings are inspected at intervals of 12, 18 and 24 hours and when the surface has assumed a light brown color the dressings are removed and the burn exposed to the air. Such treatment forms a protective coating over the burned area, prevents the absorption of toxins, and minimizes scar formation. For use about the eyes, a 5 per cent tannic acid ointment of equal parts of vaseline and lanolin is safer but not quite so efficacious.

Management of Infected Wounds and Infections.

The course of an infected wound depends on several factors: the infecting organism and its virulence, the location and size of the wound and the general condition and resistance of the patient. Smears or cultures of the discharges and inquiry into the general health of the patient frequently assist the surgeon greatly. Infected wounds require frequent dressings, free drainage, intelligent antisepsis, and local and general measures to protect and build up the body health.

As in all wounds, there must be careful cleansing and prompt removal of foreign bodies, dead bone and devitalized tissue. Severed nerves or tendons must not be overlooked. Antiseptics, such as mercurochrome, alcohol, picric acid, Dakin's solution, dichloramine-T, iodoform, or aristol may be used to advantage. The 2 per cent solution of mercurochrome, in my experience, is especially valuable.

The warm wet compress is the most satisfactory dressing for the majority of infected wounds. Saturated solutions of magnesium sulphate or boric acid are usually employed. The dressing should be kept damp continuously and warmth retained by the use of a hot water bottle. The wet dressing promotes free drainage, absorbs the discharges well and prevents disagreeable sticking of the dressing to the wound. The dressing should be renewed daily. Prolonged use of wet dressings may be attended with pustulation of the skin about the wound. Frequent and careful inspection will prevent this disagreeable complication.

After the infection clears up and healthy granulations reach the proper level, the wet dressing may be discarded for a dry one and aristol or boric acid powder applied to the wound to promote the formation of a scab. Healing under a clean scab is quite satisfactory and rapid. It is greatly preferable to the granulating wound treated with ointments which keep the wound bathed constantly in its

own secretions and which necessitate frequent dressings. Exposure of a sluggish wound to ultra-violet light frequently hastens the healing process.

The use of general hygienic measures is an important adjunct to the treatment of sluggish and infected wounds. Bettering the general health of the patient will frequently cause great improvement in a wound which runs a discouraging course. Sunshine, fresh air, a high caloric diet and the administration of cod-liver oil are agents which are frequently employed to build up general health.

Time does not permit more than a few generalizations on the treatment of closed infections. The first requisite in the proper handling of such cases is a thorough knowledge of the anatomical structures involved, their relationship to adjacent structures, their function and their lymphatic and vascular drainage. The successful management of closed infections depends on localization of the infection, adequate drainage of the discharge and stimulation of the defense reactions of the patient.

The furuncle, carbuncle, cellulitis and the several varieties of infection of the hand comprise the majority of closed infections with which one has to deal. If the infection is definitely localized, there remains merely the problem of adequate drainage. If the infection is not localized, steps must be taken to promote localization. The most useful means to accomplish this is the use of a warm wet dressing. Magnesium sulphate paste or saturated solutions of magnesium sulphate or boric acid are soothing and usually bring about localization in a few hours,—a few days at the most. Wet dressings serve the same purpose as the old household remedy, the poultice, and are much more cleanly. When localization of the infection occurs and a point of softening or fluctuation can be felt, adequate incision and drainage are indicated.

The furuncle is probably the commonest variety of closed infection. Perhaps the commonest mistake in its treatment is premature incision which causes the infection to spread. After the resistance of the patient has been built up and localization of the infection has occurred, make a careful incision into the infected area. A crucial incision is sometimes advantageous, especially when the skin is thick, as on the neck. After proper incision, the use of a small rubber drain and a wet dressing complete the procedure and in a day or two will usually cause rapid improvement. Assorted sizes of sterilized elastic rubber bands kept in sterile water are very useful as drains. After the use of wet dressings for two or three days, pustulation or unhealthy maceration of adjacent skin may be prevented and better healing encouraged by the use of an ointment such as ichthyol or zinc oxide. If the patient lacks resistance to the infection and healing is unduly retarded, vaccines and general hygienic measures are frequently beneficial. An autogenous vaccine is to be preferred, especially in cases of multiple furunculosis. Fresh air, sunshine, and the administration of cod-liver oil often bring about astonishing improvement.

The carbuncle may be likened to a compound furuncle. There are multiple foci of infection or "cores". In small carbuncles the spontaneous evacuation of these foci frequently occurs with the use of wet dressings alone. For the large or resistant carbuncle, complete excision is occasionally the safest treatment. Roentgen-ray treatment is often very useful. Here again wet dressings are indicated. Care must be taken to look for diabetes or some other systemic disease which, if present, must be treated appropriately. With a carbuncle or other similar infection on the face about the lips there is grave danger to life, especially in those cases in which premature incision has caused the infection to spread. Cerebral sinus thrombosis is a dreaded complication. Recently Roeder, of Omaha, and Bailey, of England, advised ligation of the angular vein at the bridge of the nose on the affected side.

Cellulitis represents a more diffuse infection and one which is sometimes difficult to localize. The resistance of the patient must be carefully stimulated. Warm wet dressings of saturated solution of magnesium sulphate seem to give the best results in reducing lymphangitis, promoting localized softening and relieving pain. When a softened or fluctuant area can be found, adequate incision should be made and warm wet dressings continued in order to promote drainage. Archer and others reported good results from exposure of such incised infections to the roentgen ray in small doses. Such treatment was followed by very copious drainage from the incisions and a marked reduction in the amount of induration and swelling.

Infections of the hand cannot be considered in more than a very incomplete and cursory

fashion in the limited space of this paper. Kanavel's book on the subject is an authority. Auchincloss' chapter on the hand in a recent work on Surgery is excellent and is profusely illustrated. Hertzler and Chesky, in their recent book, give very helpful discussions of this and many other problems of minor surgery.

The finger-end is a frequent site of infection. At the tip the bone, periosteum, subcutaneous tissue and corium are so intimately fused that an infection here readily involves all the structures. Infections about the nail are common. The first of these is the eponychium. It is treated by pushing back the cuticle or incising it to open the pocket at the base of the nail. Care must be exercised to avoid injury to the matrix of the nail which may cause a cleft nail. Another similar infection, the paronychium at the side of the nail, may be treated in the same way. The subungual abscess should be opened with an adequate transverse incision, avoiding injury to the nail matrix but removing that portion of the nail forming the roof of the abscess.

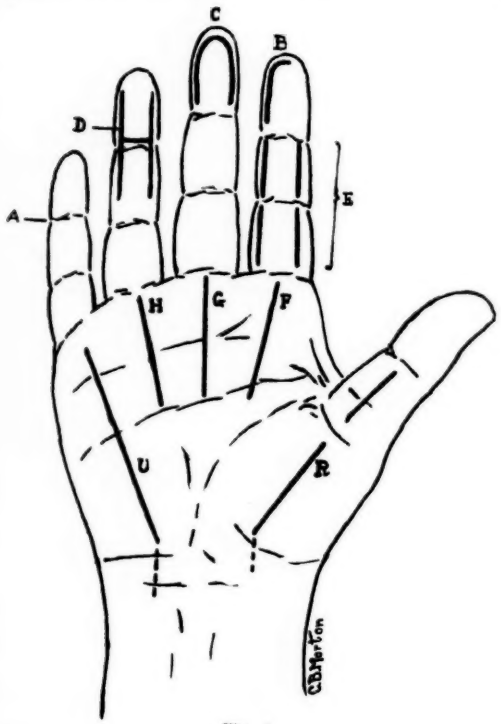

Fig. 1.

A. Flexion crease.
B. Hockey stick incision for finger-end infection.
C. Horseshoe incision for finger-end infection.
D. H-shaped incision for distal and middle closed-space infection.
E. Bilateral incisions for tendon-sheath infection.
F., G., H. Palmar incisions for tendon-sheath infections, index, middle and ringe fingers.
R. Incision for radial bursitis.
U. Incision for ulnar bursitis.

Infections of the palmar aspect of the finger-end may be superficial or deep. The simple pus blister under the epidermis should be treated by trimming away all the roof of the blister. If the infection is deeper a hockey stick or horseshoe incision should be made (Fig. 1). Still deeper infections of the anterior closed space, commonly called "felons," should be opened, in the same way and adequate drainage secured in all cases. With inadequate incision of finger-end infections, extensive osteomyelitis may occur, drainage is prolonged, granulation exuberant and healing delayed. Disfiguring and handicapping deformities may follow.

Superficial infection about the flexion creases and the proximal closed spaces should be incised with care in order to avoid entering and infecting the flexor tendon sheaths which lie very close to the surface at the flexion creases.

Incisions for finger joint infections are made in the mid-dorsal plane and bilaterally along each dorso-lateral aspect. Active motion should be started early and drainage effected with as little trauma as possible.

Dorsal subcutaneous infections frequently resemble carbuncles. Free incision early in their course is the treatment of choice. Crucial incisions relieve tension and promote free drainage.

Web-infections of the hand may be very serious and, if not adequately drained, tend to spread extensively along the tendon sheaths, fascia, vessels and other structures. Differentiation between web-abscess extensions and tendon-sheath infections may be difficult. Because of the importance of early incision for infection in a tendon sheath it may be wise to explore the tendon sheath with careful asepsis at a distance from the infection in order to make certain.

Thenar and mid-palmar-space abscesses may be difficult to recognize, especially if they be present with an infection of the radial or ulnar bursa. If these latter structures are involved, signs usually may be found in the tendon sheaths of the thumb and little finger. Careful incision and methodical exploration will reveal the condition.

Suppurative teno-synovitis should be opened at once. Auchincloss says: "Far better is it

to open a few tendon sheaths too early than one too late." Adherent tendons and stiff fingers may be avoided by prompt and painstaking action. Bilateral incisions are probably safest. Drainage should be free and unobstructed. Drains should be made of soft material, such as thin rubber protective tissue or silk, and should not actually enter the tendon sheath or touch the tendon.

Diffuse cellulitis, lymphangitis, and phlebitis of the fingers and hand are rather similar to such infections elsewhere. Elevation of the part and the use of warm wet dressings are helpful in promoting localization. As in all such infections, operative procedure until localization has taken place is now universally condemned.

The treatment of infections of the hand may be summed up under drainage and post-operative care. Drainage must be free. Materials for drains must be soft and of the proper shape and size. They must be so placed as to avoid blocking the wound or producing pressure necrosis. They should be removed at the earliest possible moment after their mission is fulfilled.

Post-operative treatment in general consists in elevation of the part, loose and non-constricting dressings, moist heat by fomentations or actual immersion, early removal of drains and encouragement in carrying on active motion. Once the principles of these infections are understood, each physician may develop his own technic with success.

SUMMARY.

An attempt has been made to deal with some of the more important principles of minor surgery. The discussion was limited as far as possible to those problems which may be encountered by the general practitioner in his office or in the home and which may be solved in most cases without subjecting the patient to hospitalization.

The general principles of antiseptic and aseptic surgery and local and general anesthesia were outlined. The conduct of the clean case was considered briefly. The management of potentially infected and frankly infected wounds was described at greater length. Closed infections were considered from an anatomic standpoint and certain cautions to be observed in treating them were emphasized. Infections of the hand were given especial prominence.

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THE LAST WORD IN SURGICAL TONSILLECTOMY INCLUDING DIATHERMY OR ELECTRO-COAGULATION.*

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Mr. President, Members of the Virginia Laryngological Society and Guests:

I am not going to bore you by reviewing all of the older methods of removing the tonsils, from the days of the guillotine, through the finger, the blunt and sharp instrument dissection, and the wire snare, to the present day use of the Sluder and LaForce instruments,—but rather confine my remarks to the technique as followed by the Skillern Clinic of the University of Pennsylvania Graduate School of Medicine. As the procedure is the same for private or ward cases, I shall start with the examination, be it either in the office or outpatient department.

How many of our fellow physicians, outside of our specialty, know how to examine a tonsil, and, after examination, how to interpret their findings? There are still a goodly number who, looking into the throat and failing

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to see the tonsils sticking out of their fossae like sore thumbs, say, "tonsils negative!" Whereas, in reality, these buried, cryptic, infected tonsils, well covered by the plica tonsillaris and the anterior pillar, are by far the worst type we have to deal with, both from their general systemic infection and their removal. If those men who pass these tonsils would only look at the inflamed anterior pillars and stop to consider what may be causing this inflammation,—then pull the anterior pillar gently forward, at the same time pressing the tonsil inward and forward out of its bed,—they would find a tonsil of the small atrophic or large buried type, with wide open crypts spewing particles of food, tonsillar debris and, often times, free pus. If a sterile platinum loop is carefully inserted to the base of one of these crypts and a culture made on blood agar and another in bouillon, a growth of the offending organism may be obtained for diagnostic purposes, as well as a future autogenous vaccine. We have found from numerous cultures that the anterior pillar which shows acute inflammation at its edge, the redness extending outwards to end in a sharp line of demarcation, is usually due to a streptococcal infection, whereas, if the inflammation gradually fades out on the anterior pillar, the staphylococcus is found deep down in the tonsillar crypts. A culture from the surface of the tonsil or, in fact, any spot other than as deep down in the crypt as it is possible to get, is as useless as one would be taken from the tongue or any other spot in the mouth,—but I am getting far afield. So, to get back to the patient: Whether it be an adult or a child, he is given a calomel purge with sufficient soda to alkalinize the stomach; this is followed in the morning by a saline cathartic. We do this routinely, as we have found calomel to be almost a specific in acute tonsillar infections and we wish to rid the system of as much infection and toxins as possible, by its action on the liver, bowels and kidneys. The saline purge rids the bowel of the excessive calomel, and at the same time reduces the fluid element of the blood, which tends to reduce bleeding from the adenoids. After a light breakfast, nothing is to be taken by mouth and the patient is instructed to be in the hospital by eleven o'clock.

As all of our operating is done during the afternoon, the interne has time for a brief history and a careful physical examination, and the laboratory a complete urinalysis. We have long since given up the coagulation test as useless.

Unless there is some absolute contra-indication, all of our tonsil cases are done under gas-oxygen-ether anaesthesia, as we believe there is less physical shock and better results (as a whole) than with the use of local anaesthesia. Gas-oxygen induction is given by a professional anaesthetist to all adults and children down to the age of five years; for younger children and infants and for the poorly developed anemic type, anaesthesia is induced by the open drop method, using straight ether. The patient is anaesthetized on the operating table until complete relaxation is obtained, then is wheeled into the operating room, where sterile drapings are applied. We formerly used the electrically lighted mouth gag (a Skillern modification of the Jenning's lock-tight gag) which keeps the operating field constantly bathed in light and allows the assistant to work while the operator is talking or getting another instrument, but the new hospital is equipped with both the large stationary and small portable scialytique lights which, as you know, cast a shadowless light; therefore, we no longer use the Jenning's gag.

After a trial (comparative trial) of all the methods of removing tonsils, we have found that the best all-around results are obtained by the LaForce Method. The entire tonsil, including the so-called capsule, is removed at a single operation,—there is a minimum of trauma to the pillars, little or no hemorrhage at the time of operation, and we have never had a post-operative hemorrhage that required ligation or suturing. Inquiry among the staff has failed to reveal a single instance in twelve years, that the operator has been recalled to check a hemorrhage following a LaForce tonsillectomy.

The LaForce tonsillectomy in our hands gives the maximum result with the minimum amount of trauma and discomfort to the patient and the shortest convalescence.

After the LaForce is applied and the dull-blade screwed down as tightly as possible, the tonsil is cut by the sharp-blade. The heavy dull-blade is allowed to remain on the cut vessels for about three minutes which permits coagulation to occur in these crushed vessels. In this way, the amount of bleeding is generally insignificant,—in fact, as a rule, the

fossae are perfectly dry. When bleeding does occur, we feel that there has been some error or slip up in technique, as a perfect LaForce tonsillectomy should leave the pillars in apposition with a dry fossae in back of them. A great deal depends upon the proper handling of the instrument; we have found in our teachings that when bleeding does occur, it is due to one or both of two main factors, i. e., the dull crushing blade was not screwed down tightly enough or during the time the clamp was on, the instrument had been roughly moved about, either by the anaesthetist in giving more ether, or by one of the operators in keeping the throat dry of secretions with the suction, or else the operator had been careless and rough in the removal of the instrument, thus disturbing the clot in one or more of the cut vessels.

It sometimes occurs that, while the instrument is on, there is a slight bleeding around the dull-blade. We have found that this is usually due to a small vein, running parallel to the long axis of the fossa, which has been cut along its length, thus taking off only the one wall. This vein, of course, cannot contract or retract into the tissue as it would do if cut cleanly across its lumen. When this condition is met, it is a simple matter to pick up the end of this vein with a small pointed hemostat and twist it, thus breaking it across. This procedure is not always necessary; if a small, round sponge about the size of the removed tonsil is carefully placed between the pillars, it will check this hemorrhage in a few minutes. In fact, a rather actively bleeding artery may be checked by this method. If the sponge placed in the tonsillar fossa remains white and dry on the inner side, it shows that it is controlling the bleeding, but, if this sponge becomes saturated with blood and saliva, it must be removed, and a fresh, dry sponge inserted. There is little or no danger of a dry sponge slipping out from between the pillars, once it has been properly placed,—that is, so that the anterior pillar is partly over-lapping and thus holding the sponge *in situ;* whereas, if this sponge become staturated, there is great danger of its slipping into the throat and cutting off the breathing of the patient or being swallowed. When we place this sponge in the fossa, we do not hold it there with pressure, as we believe that this pressure holds the blood out of the cut vessels and prevents clotting, and that when this pressure is removed, bleeding will recur. In fact, after the sponge is inserted, we remove the sponge holder and tongue depressor, and partially close the mouth gag, thus removing all tension from the throat muscles.

In visiting another clinic recently, I saw this procedure carried out with the additional precaution of having a silk ligature tied to the sponge, the end of which was brought out of the mouth, and held by a hemostat. I thought this a very good idea, as it does away with all danger that might occur from this sponge slipping into the throat.

After the dull-blade is screwed down as tightly as possible, the tonsil is at once cut off by the sharp-blade and removed from the throat. We inspect this tonsil carefully to see that the so-called capsule is intact, for, if we find the capsule nicked or if there is a cut edge to the tonsil, we know that a piece of tonsillar tissue has been left in the throat. After the LaForce instrument is removed and the pillars are allowed to separate of their own volition, by retracting the anterior pillar, the fossa is carefully inspected, especially at its base, where at times there will be found, mainly in the adult, a piece of so-called extra-capsular tonsil. This is in reality a piece of lymphoid tissue connecting the lingual tonsil with the faucial. We remove this, as well as any other piece of tonsillar tissue that may be found in the fossa, with the Luc forcep and wire snare. It has been our experience that if this piece of so-called extra-capsular tonsil is allowed to remain, nature, in trying to fill the empty fossae, will cause hypertrophy of this lymphoid tissue, which may grow to attain the size of the original pharyngeal tonsil. It is this hypertrophied tissue, or the failure to remove all vestige of tonsillar tissue with its hypertrophy, that has given the public the idea that tonsils recur after their removal. Many men hesitate to remove this piece of lymphoid tissue, as it contains the inferior tonsillar branch of the lingual, and rather severe bleeding often occurs with its removal. This hemorrhage can be usually controlled with a dry sponge; if not, one suture will control it immediately. A final inspection is made of the throat for any bleeding area, as it is a rule of the Skillern Clinic to let no patient leave the operating table until all hemorrhage is controlled. The patient is placed on the

XUM

stretcher face downward, so that any vomitus or any secretions coming into the mouth will run out, and not be inhaled; he is then covered with a hot blanket, and sent to his bed, to be placed in the same prone position until out of the anaesthetic. We are glad to say that lung abscesses are unknown to this Clinic, and, to our knowledge, the same may be said for pneumonias following tonsillectomies.

When the patient is fully out of his anaesthesia, he may be allowed as much cold water as desired. If vomiting occurs, especially if it is persistent, a dram of soda bicarbonate dissolved in six or eight ounces of water is given. This does two things—washes out the stomach and gives the patient something to vomit, thus stopping the wrenching that so often occurs with an empty stomach, and neutralizes the acidity of the stomach. When the patient is able to retain water, it is followed by a liquid diet, returning to a full diet as soon as possible, usually on the third day. Most patients find that a neck ice-cap is comforting. Sleep is induced the first night with the aid of two or three adalin-luminal tablets, and on the following day an aspirin gargle of about two and a half grains to the ounce of water is advised. At the end of twenty-four hours, the patient is discharged and given a prescription for Hancock's Cocanilid, or some other suitable lozenges.

For those cases in which we are unable to use a general anaesthetic, the same procedure may be followed after the injection behind the tonsils of our local anaesthesia, namely, 2 per cent novocain. From this paper it sounds as though all of our tonsillectomies are LaForce procedure, but experience has taught us that there are a certain number of cases—about 3 per cent—in which it is impossible to apply the LaForce instrument, generally due to the tonsils being bound down tightly by numerous adhesions either from old attacks of quinzy or other forms of tonsillitis, and to previous incomplete surgical intervention. In these types of cases, we fall back on dissection with a sharp knife and the wire snare.

Now, what is the method for those cases who fear a general or local anaesthesia,—who have an abhorrence of operation, or, due to their age or some pathological condition, would be extremely poor surgical risks?

Within the last few years, several new methods for the removal of tonsils have been devised for these types of cases, among them being fulguration, desiccation and coagulation. Fulguration is the destruction of tissue by the playing of high-frequency sparks upon the part to be destroyed by superficial action, and is the least adaptable for the removal of tonsillar tissue. Desiccation is the effect of the unipolar current which brings about the evaporation of the fluid elements of the cells, leaving the treated tissue in a dehydrated condition, such as a state of mummification. This can be brought about by burying the needle in the tissue instead of playing high-frequency sparks upon the surface of the tissue. In both of these methods, high voltage and low milliamperage are necessary. Coagulation is the exact opposite of these two methods, and is accomplished by the heavy amperage and low voltage of the bi-polar D'Arsonval current being converted into destructive heat within the tissue, by the resistance of the tissue to the tremendously rapid-moving current, and is concentrated about the point of the active electrode, coagulating the protoplasmic and cellular structures. At this time, my research work has justified my preference for coagulation in selective adult cases, although occasionally I employ the more superficial action of the desiccation current for the removal of tonsillar tabs, and it is here, with an explanation of electro-coagulation in selective cases, that I shall close this paper. While I regard the use of coagulation as an entirely safe and commendable procedure when complications render the usual radical method contra-indicated, yet the use of this destructive element is not without grave dangers, and requires as much skill and knowledge of the part, as would be required in the orthodox surgical procedure. This method is employed without the necessity of injecting local anaesthesia, is without shock to the patient, and causes little or no post-operative reaction, i. e., hemorrhage, edema, extreme soreness of the throat or any of the other complications that may follow the usual surgical removal. It is a most satisfactory method for cases accompanied by serious involvement of the heart, lungs and kidneys, and for hemophiliacs, acute syphilitics, and the aged, as well as for that tremendous number of adults who refuse surgery, and yet are in dire need of the removal of this seat of infection. If electro-coagulation is explained to this latter

type of cases, it usually receives an extremely happy welcome.

In my clinical work at the Post-Graduate Hospital of the University of Pennsylvania, I removed a number of partially coagulated tonsils. In those cases that had received two or more treatments, I found that the heat necessary to destroy the tonsillar tissue had, to all appearances, destroyed the infecting organisms within the depths of the crypts. The bi-section of the coagulated tonsil showed the cells below the destructive line presented a normal picture, and it was also gratifying to note the constitutional improvement in these cases after the second treatment.

Technic

The machine employed for this type of work must be of correct design as to voltage, milliamperage, oscillations and their relationship to one another. This is essential for the duplication of results and insures an ideal procedure free from irritation and practically painless. The machine is prepared for operating by taking a "dead short" across the low voltage terminals and opening up the spark-gaps to produce the required milliamperage. I use a 3,000 milliampere reading on the meter with the spark-gaps barely open, which gives me a reading of approximately 350 milliamperes when the patient is in circuit. Having procured the proper setting, a piece of block-tin (about 70 square in.) is placed on the patient's bare skin in the upper dorsal region and made to conform to the normal contours. One side of the low voltage terminal of the machine is connected to this indifferent electrode by means of a flexible insulated cord, while the other terminal is connected to a rubber insulated needle-holder, and we are ready to proceed.

Since this is an office procedure, the patient is comfortably seated in either a wood or metal chair. The tonsil is then anaesthetized according to individual preference or requirements, eliminating infiltration into the tonsillar tissue directly, since added liquid causes too much diffusion of heat. Personally, since I favor coagulation of the tonsil over a period of sittings, I have found little need for anything more than a spray of 1 per cent cocain solution, to be followed by 7 or 8 topical applications of a 10 per cent cocain solution over a period of four or five minutes, chiefly to the tonsil, with one application to the base of the tongue, uvula, soft palate and side of cheek.

The foot-switch control should be in an easily accessible position. A needle-holder supporting a specially prepared needle, curved about 45 degrees to about one-quarter inch from its distal end, and which is insulated by a piece of rubber tubing down to the point of curvature. The tongue is then depressed with a spatula, and the needle buried into the tonsil about one-quarter of an inch. After a slight amount of traction, the current is turned on by pressing the foot-switch, and is held on until a greyish area appears around the needle at the point of insertion, which should come about in less than a second. Then the foot-switch is released, the needle withdrawn, and a new contact made. Six to ten contacts are taken at various points and depths according to the size of the tonsil and the amount of destruction desired at one sitting. The other tonsil may then be treated in the same manner.

In my private practice, I treat one tonsil at a sitting. In a week, the patient returns for a treatment of the other tonsil, at which time the slough of the tonsil first treated has dissolved, and approximately a quarter of the tonsillar tissue has disappeared.

Following each sitting, the patient is instructed to use an aspirin gargle, and I find this sufficient to combat all the after-soreness, which rarely interferes with eating, or the daily occupation.

By carefully following this technique, and with usual judgment and a definite respect for the powerful destructive agent at hand, results of a high order should be procured, leaving pillars clean, preserving the original contours of the throat, and eliminating the tonsil tissue with little or no after-scar. If this technique is followed carefully, there will be no slough, no post-operative hemorrhage, no secondary infection, no troublesome granulations and little or no edema.

Precautions

It seems imperative to call your attention to the value of witnessing this procedure in all its phases as performed by one adept in all stages of its application, not once, but many times, and also to caution you against the indiscriminate use of antiquated equipment, im-

XUM

properly designed and totally unfit for this class of work.

The tendency of the novice is to over-coagulate, and this must be guarded against most strenuously, since it is certain to defeat the good results this method will accomplish. The best rule to follow is to merely carry coagulation to where the area around the point of the needle insertion begins to change in color. Coagulation carried to the point of instantaneous cellular destruction (as will be evidenced by charring) favors the interposing of a scar-formation which will make further enucleation difficult.

Over-coagulation or charring of tonsillar tissue, as you may readily suppose, favors early separation of the slough if the coagulation has extended deep enough, and the walls of the vessels of the neck may be included in this slough—with dire results.

Electro-coagulation is entirely a surgical procedure which can be employed for the successful removal of diseased tonsils in adult cases. With the proper technique, this destructive agent is under definite control at all times, making this type of tonsillectomy a bloodless procedure, with no serious reaction, no shock, and eliminating toxemias. In the presence of certain complications, it is a method deserving the attention of laryngologists, and should be adopted when, for any reason, surgical removal by the LaForce method is impracticable.

1734 *Pine Street.*

LOCAL ANESTHESIA IN SURGERY OF THE EYE, EAR, NOSE AND THROAT.*

By GEORGE G. SNARR, M. D., Winchester, Va.

For the past six years we have been doing the greater part of our surgery under local anesthesia. We do not limit local anesthesia to adults, as the age of our patients has been from ten to seventy-seven years.

So far we have not undertaken an operation under local anesthesia at any age that we were not able to complete successfully. We have had several cases that were very trying to the surgeon and difficult to complete; two of these were nasal operations, and we found the cause to be they were cocain users and were playing for more anesthetic. The other case was a tonsillectomy and her tongue action cannot be described here. However, the operation was completed successfully.

We have heard and read a great deal about selecting your patients for local anesthesia; some say never use it on nervous patients; others say do not attempt it on children, and then we have heard of the importance of studying the individual's psychology for several days before attempting an operation. So far we have not discriminated in selecting our cases for local anesthesia except in children who are on the border-line as possible subjects for local anesthesia. In these cases we do study the psychology, and, after a short examination, we can readily determine if they will be fit subjects for local anesthesia.

There are children who have been taught to fear a physician by thoughtless and indifferent parents by telling them of some inhuman mutilation to get obedience. To undertake an operation on one of these children would be pathetic and calamitous.

We have found the children we have selected, which are the majority of children, and all adults can be operated upon with the greatest of satisfaction both to the patient and the operator. Therefore, we advise all of this class of patients to have a local anesthetic. We do not mean to imply that we do not vacillate at times, for we have patients who absolutely refuse to have a local anesthetic, and we unhesitatingly respect their desire.

Our preference for local anesthesia and to use it consistently is based upon several factors. All things being equal, it is safer. In our community all of the general surgeons do tonsillectomies, mostly under general anesthesia, and we have found that a great deal of our referred work has been referred to us because the patients were physically unfit for a general anesthetic due to some kidney, heart, or lung condition, and a general anesthetic would have endangered their lives. If local anesthesia is the best type of operation for the poor risk, why not be consistent and use it in the good risk? It is true that some fatalities have been reported by the Committee on Local Anesthesia of the American Medical Association, and, if the poor risks are the majority of local operations, we should expect a higher mortality than we have with general anesthetic. Regardless of the anesthetic, if a physician operates frequently and for

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a long period of time, he will have fatalities in spite of every precaution he may take.

We believe some of the deaths under local anesthesia were due to a mistake of using a toxic instead of a non-toxic preparation by not reading the labels properly. It has been our practice to have the nurse show us the bottle before putting any solution on the instrument table.

Of course, with local anesthesia your patient will not be subject to ether pneumonia, and, being conscious, is not as likely to aspirate some infectious material as when under a general anesthetic deep enough to abolish the cough reflex; therefore, he is not as apt to develop aspiration pneumonia or lung abscess.

Dr. Thomas McCrae, of Philadelphia, says the day has certainly gone by when any physician who has performed a considerable number of tonsillectomies has the right to state that abscess of the lung has never followed any tonsillectomy that he has done. He suggests that every patient who is discharged following tonsillectomy should be instructed to return at once if there is any evidence of thoracic disease within three months.

It is also believed that many abscesses of the lungs are due to infection by way of the blood stream by infection at the site of operation and the formation and dislodgment of septic thrombi. To the latter our preventive efforts can best be applied under local anesthesia, because, under local anesthesia, the operation must be done with sharp instruments and practically no traumatism and there is comparative quietness of the throat after the operation. Cleanliness is another important factor in preventing these infections.

The fact that tonsil operations are done by many men who are not specialists in this work does not mean that the operation is not one that requires skill and the same cleanliness that is necessary with any other major operation.

We are of the opinion that tonsil operations should not be done by surgeons not specialized in this branch, as the majority of them look upon a tonsillectomy as a minor operation and of little significance. If this came from any laryngologist in this part of the valley other than the reader, it might be credited to jealousy, but he has had the pleasure of doing general surgery in this city (Harrisonburg) rather successfully for eight years, and, if he so desired to repeat, would not fear any hazards in doing so.

Shock is another deciding factor of local anesthesia. We know that under local anesthesia no impulses reach the brain if properly anesthetized, and this will prevent a great amount of shock.

You are reminded of some noted surgeons that inject some local anesthetic into the tissues before operating, even under general anesthesia, so, again, why not be consistent?

Nausea and vomiting are almost always absent after local anesthesia, and we do not mean to imply that it follows every general anesthesia, for it does not, but these are not as consistently absent as with local.

Particularly in tonsillectomies, you have less post-operative hemorrhage, because you have a drier field, better co-operation of your patient as to position, and less instruments in the mouth, making it easier to tie each individual vessel.

We have kept a record of our last 300 tonsillectomies under local anesthesia, ages ranging from ten to seventy-seven, with a post-operative hemorrhage of 1½ per cent, against ninety-five tonsillectomies under a general anesthetic, with a post-operative hemorrhage of 3 per cent. A complete record of this series was kept and the same pre-operative and post-operative measures were used in both classes.

In our mastoid operations, we have had no complaint from our patients n regard to pain, no unpleasant condition has arisen, and the post-operative progress was very satisfactory.

The same thing may be said of enucleations of the eye and radical sinus operations. Fortunately, we have not had to do many eye enucleations, but the several we did under local anesthesia were very gratifying both to the patients and to us.

Radical sinus operations, and especially the Caldwell-Luc operation on the superior maxillary sinus, are extremely satisfactory under local anesthesia. When doing this operation you encounter, as a rule, a great amount of granulation and polypoid tissue, causing considerable bleeding which accumulates in the back part of the nose and throat: after patients have held this to their capacity, they expectorate it. If these patients were under a general anesthetic, they would undoubtedly aspirate some of this blood containing infectious material and the balance would pass on to the

stomach and intestines where some absorption would probably take place.

Paracentesis of the ear drum is an operation generally done under local anesthesia and is painless if sufficient time is given to the anesthetic.

There are many essential factors necessary to obtain localized anesthesia and to operate after you have produced it.

The surgeon must have absolute control of himself under all conditions that arise. He should be able to anticipate for his patient those things which are apt to cause fear, and to forestall and handle them in such a manner that the patient will be free from anxiety. No doubt some of the failures said to be due to a nervous patient could be attributed to a nervous surgeon if investigated thoroughly.

A surgical assistant accustomed to using a local anesthetic himself and thoroughly acquainted with the operator's method is of greatest value.

The selection of the anesthetic is of no importance except in choosing one that is nontoxic, but the method of applying the anesthetic is important.

We are of the opinion the best way to master this is by practice, carefully noting each time how you apply it and the results until you master it.

110 *N. Braddock Street.*

JAUNDICE IN GAS BACILLUS INFECTION, CLOSTRIDIUM WELCHII.*

By HARRY T. MARSHALL, M. D.,
and
THELMA F. BRUMFIELD, M. D.,
From the Department of Pathology, University of Virginia.

A recent autopsy attracted our attention to the marked jaundice occasionally presented by victims of gas bacillus infection, and two others also reveal the relations between the color and the Welch bacillus.

A patient admitted to the hospital dying after apparent attempted abortion was so deeply jaundiced as to look like a mulatto. The clinical diagnosis rested between acute yellow atrophy and gas bacillus infection. The autopsy performed an hour after death showed deep yellow pigmentation of skin, sclera, and fat. In the subperitoneal tissues of the left pelvic wall there were gas bubbles and crepitus, and smears from this region were heavily loaded with organisms morphologically identical with C. Welchii. There appeared to be a mixed infection, however, since there was an acute diphtheritic endometritis and cystitis, with multiple necroses in the liver. The kidneys and spleen were nearly black in color, all finer details being obscured by the products of blood destruction; the kidney pelvis was filled with bloody urine; and the intima of the blood vessels showed a marked hemolytic staining. However, there was remarkably little destruction of the body tissues, and the general gaseous change seen a few hours after death in these cases was absent.

A second case admitted to the obstetrical service with threatened abortion was delivered of a macerated fetus and placenta positive for gas bacillus. This patient presented distinct jaundice during the first few days in the hospital, with tarry stools and brown cloudy urine, but massive doses of perfringens antitoxin, up to 1 000 c.c. in divided doses, resulted in the disappearance of the features of gas bacillus infection. During the first day or two in the hospital with hematuria, the hemoglobin fell from 65 per cent to 25 per cent, but, following antitoxin and transfusion, the jaundice distinctly reduced and hemoglobin rose to 32 per cent. The patient eventually died of pericarditis, endometritis and early kidney abscesses. At the autopsy, the skin was distinctly yellowish two weeks after the administration of antitoxin. All other evidence of previous gas bacillus infection, however, such as crepitus, hemolysis and tissue destruction, was absent.

In a third case the patient died three days after receiving a bullet wound causing multiple perforations of stomach and intestines. At autopsy there was peritonitis, repaired wounds of the abdominal viscera and an early gas bacillus infection extending out from the edge of the surgical incision in abdominal wall. In this patient, a colored man, jaundice was recognized only in the subcutaneous tissues adjacent to the wound. The local abdomial wall was hemorrhagic, discolored and gangrenous, but there was no general hemolysis nor was there yellow discoloration of the fat. Death was not due to gas bacillus which was only a terminal invader of a patient dying from peritonitis. Death occurred before the characteristic changes of gas bacillus infection had taken place.

*Presented before the University of Virginia Medical Society.

In recent literature the association of gas bacillus infection with jaundice has been noticed in the Australian journals (ref. 1, 2 and 3), and as cause of melena neonatorum (refs. 4, 5 and 6). The darkening or jaundice is apparently due to the development of methemoglobin. Butler (ref. 3) has recently noted bronzing of the skin of gas infection of an abdominal wound and points out the rarity of abdomial wound gas infections.

SUMMARY

Three autopsies are reviewed with reference to the pigmentation, hemolysis, gas formation and tissue destruction of gas bacillus infection. In one, the hemolysis and jaundice was intense, the gas formation and destruction negligible as the autopsy was performed almost at once after death.

In a second case, an active gas bacillus infection was stopped by serum administration but at death from other causes, two weeks later, there was still jaundice of skin and fat, though no evidence of gas bacillus infection.

In a third case dying of general peritonitis with terminal early gas infection, the discoloration was limited to the gas infected edges of an abdominal wound.

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MASSAGE AS A THERAPEUTIC AGENT.*

By M. B. JARMAN, M. D., Hot Springs, Va.

Since the World War much has been said and written about physio-therapy in its various forms. It is one of these physical therapeutic agents about which I have chosen to talk very briefly today. I have chosen this subject, not that I feel I am an authority on it, nor because I have any new knowledge to contribute to it, but simply because I believe massage to be a therapeutic agent of sufficient importance to justify us as practitioners in keeping it in mind,—one which has stood the test of at least five thousand years of use in the treatment of disease, and one which the busy doctor is prone to forget or neglect to prescribe.

Three thousand years before Christ the Chinese had a system of gymnastics and massage. Massage is referred to in the sacred books of the Hindus. The Greeks and Romans placed a great deal of emphasis on its use,—the Greeks in particular having a regular system of combining baths, gymnastics, massage and exposure to air and sunshine.

Nearly four hundred years before Christ, Hippocrates, who is so often referred to as the "Father of Medicine," wrote:

"A physician must be experienced in many things but assuredly also in rubbing * * *" and added a list of results which could be accomplished by rubbing.

Massage was used by the French surgeon, Pare, in the Sixteenth Century—in fact, throughout the history of medicine, many references to its use may be found.

In 1812 the whole system of massage and gymnastics was revived and re-arranged by Peter Ling, of Sweden. He founded a school in Stockholm which continues to the present day to train masseurs. Many of the best masseurs in this country today have received their training in Sweden where so much care is given to the proper training along this line.

In this country, in 1875, Dr. Weir Mitchell made massage an important part of the so-called "Weir Mitchell" treatment of certain types of nervous patients.

More recently massage has become rather extensively used,—sometimes properly, sometimes, perhaps, improperly, in treating a great variety of conditions.

Massage exerts its influence on the tissues in two ways:

I. By mechanical action.

II. By reflex action.

By its mechanical action it may aid the circulation of the blood or the flow of lymph. It may exert tension on some structures which we wish to free or stretch, or it may, by pressure, exert an influence on abdominal viscera.

Massage aids the circulation by aiding the venous return of the blood. This is produced by rubbing or stroking the tissues in the direction of the flow of the venous blood. It affects the flow of lymph in the same way. By pressure, or stretching, newly formed adhesions or connective tissue may be broken down. A great deal has been said, and little

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XUM

or nothing proved, as to the mechanical effect of massage on the abdominal viscera, but it certainly seems to be of value in causing contraction of the uterus after the third stage of labor. It can also exert an influence in emptying the colon. What it will do for the liver and other abdominal viscera is purely a matter of speculation.

There is some reason for believing that massage may produce an effect by reflex action. It is a matter of experience that we instinctively rub our foreheads or eyes when mentally fatigued and that by so doing we get a sense of relief. This rubbing or stroking is done so gently that the result cannot be explained on the basis of the mechanical effects of the stroking. Furthermore, it is known that certain stimuli to the body surface will produce contraction of the muscles by reflex action. It has been suggested that different types of stimuli might produce the opposite effect by reflex action. Other evidence of the reflex action of massage is that presented by Dr. Lucas-Championniere, who treated recent fractures by the use of gentle massage, thereby securing relief of muscle spasm with the result that he was enabled to reduce the fractures with relative ease.

Massage differs from active exercise of muscles in that it brings about a change in the muscular tissue without causing fatigue, or without effort or exercise of the will on the part of the patient. Pemberton has pointed out evidence which indicates that massage of the muscles is not accompanied by the formation of lactic acid and carbon dioxide as is the case when active exercise of the muscles is indulged in.

I will mention a few conditions, the treatment of which can be aided by the use of massage. No attempt is made to list all of the conditions in which massage is of value, nor is it desired to give the impression that massage is the most important part of the treatment in the conditions listed.

Fractures: The return to normal function of the injured part can be greatly aided and the period of convalescence following fracture can be shortened by the use of massage along with active and passive exercises. The same can be said for sprains and strains. While massage may not be an absolute necessity in the treatment of these injuries, which the general practitioner is so frequently called upon to treat, it is a most valuable aid.

Myositis and Fibrositis: There are many individuals who are suffering discomforts as a result of chronic myositis or fibrositis. Many of the low backaches are due to these conditions. I know of nothing more effective in the local treatment of chronic myositis or fibrositis than the combination of heat and massage. In some cases the results are spectacular.

Arthritis: Marked symptomatic relief may be obtained in many cases of chronic arthritis by the use of heat, massage, and exercise. Until we learn more about the underlying cause or causes of these types of arthritis than we know at present, symptomatic relief is about the best we have to offer in their treatment, and in this connection massage is most valuable.

Paralysis: Massage should be used in most types of paralysis. Of course, it should be remembered, and strongly emphasized, that massage should not be resorted to in the acute stage of infantile paralysis. It should also be remembered that massage of the paralysed part should be gentle massage as contrasted with deep massage, because of the danger of injury to the blood vessels, the walls of which may be involved in the paralysis.

Visceroptosis: Massage of the abdominal muscles is recognized as an aid in the medical treatment of visceroptosis. While it is by no means the most important factor, the treatment would not be complete without it.

Chronic Constipation of the Atonic Type: The treatment of this condition may be aided by the use of massage both by the effect produced on the abdominal muscles and mechanical effect produced on the colon.

Massage, of course, should not be used in acute inflammatory processes, tuberculous lesions, neoplasms, thromboses, and recent injuries to the skin or superficial structures.

Massage should be administered by one trained in its use and only under the direction of the physician familiar with both the local and general condition of the patient.

Enough has been said to remind ourselves that in massage we have a therapeutic agent which through many centuries has proved a valuable aid in the treatment of disease, but, like other agents capable of doing good, it may do harm if improperly used. If kept in mind by physicians and prescribed when indicated,

the result will be an increasing number of satisfied patients,—satisfied because of the results obtained;—if totally forgotten or neglected, the result will be an increasing number of dissatisfied patients and considerable joy and financial profit on the part of some of the "Cultists" who delight in taking advantage of our dissatisfied patients as a means of encroaching more and more into the domain of legitimate medicine.

GONORRHEAL RHEUMATISM.

By EDGAR W. YOUNG, M. D., Petersburg, Va.

Before taking up gonorrheal rheumatism itself, I will stray off and say something about gonorrhea in general.

Gonorrhea should not be passed on as it is by so many doctors as a simple strain, gleet, and as something that is of no importance, and that is not as bad as a bad cold. These various and sundry things that we all hear daily about gonorrhea to my mind are ridiculous and should be so considered by every good thinking doctor. With more serious attention gynecological surgery would be reduced considerably.

Gonorrhea is an acute infection which very often has numerous secondary and systemic manifestations, of which prostatitis and epididymitis, salpingitis, arthritis, synovitis, endocarditis and pericarditis are the most important. Gonorrhea, then, is one of the most widespread and serious of infectious diseases, presenting many features for consideration. It is not a killing disease, as only 39 fatal cases are recorded in the Registrar General's Report, although 1,009 are noted for England and Wales. However, as a cause for ill-health and disability, the gonococcus occupies a position of the very first rank among its fellows. While the local lesions are too often thought to be trifling, in its singular obstinacy, in the possibilities of permanent sexual damage to the individual himself, and still more in the "grisly troop" which may follow in its train, gonorrhea does not fall very short of syphilis in importance.

Complications of gonorrhea may be epididymitis, salpingitis, arthritis, synovitis, vaginitis, endocervicitis, inflammation and abscess formation of the Bartholin glands, ophthalmia neonatorum, metritis, ovaritis, sometimes peritonitis, cystitis, pyelitis, septicemia, pyemia, endocarditis, pericarditis, and iritis.

We are going to consider one complication only, and that is gonorrheal arthritis. Although each of the others are of equal importance, we cannot consider all at this time. Gonorrheal arthritis is one of the most damaging, disabling, and serious of all the complications and occurs in from two to five per cent of the cases. It occurs more frequently in males than in females, and comes on, as a rule, during an acute attack of gonorrhea; however, it may occur as the attack subsides, or even when it has become chronic. A gonorrheal arthritis of great intensity may occur in newly married women who have become infected by an old gonorrhea in the husband. In women it is not always easy to find witness of local infection. As a rule, many joints are affected, and it is peculiar in attacking certain joints which are rarely involved in rheumatic fever, as, for instance, the sterno-clavicular, the intervertebral, the temporo-maxillary and sacro-iliac.

The anatomical changes are variable. The inflammation is often periarticular, and extends along the sheaths of the tendons. When effusion occurs in the joints, it rarely becomes purulent. It has more commonly the character of a synovitis, although about the wrist and hand suppuration sometimes occurs in the sheaths. The gonococcus itself is present in the inflamed joint or in the periarthritic exudate and may often be obtained in pure culture, or as a mixed infection with staphylococci or streptococci.

Variability and obstinacy of the clinical course are the two most distinguishing features.

Following are the most important clinical forms:

Arthralgia: In this condition there are wandering pains about the joints without redness or swelling. These persist for a long time.

Polyarthritis: Several joints become affected in this variety. Fever is slight. Local inflammation may fix itself in one joint, but more commonly several become swollen and tender. In this form cerebral and cardiac complications may occur.

Acute Hydrarthrosis: This is usually mono-articular, and is particularly apt to involve the knee. It comes on without pain, redness or swelling, and formation of pus is rare.

Bursal and synovial forms attack chiefly the tendons and their sheaths, bursae and periosteum.

XUM

Painful heel is due in some cases to local periosteal thickenings and exostoses on the os calcis causing pain and great disability.

Symptoms of gonorrheal arthritis are chiefly one joint involvement at the time, as a rule, together with pain, swelling, redness, anorexia and slight fever.

Treatment consists of finding and removing the cause, and treating the gonorrheal condition at the same time you are treating the rheumatism. Put the joint at rest and use hot applications. Opiates for pain are usually required for the first few days. Salicylates, iodides, gonorrheal vaccine, together with free elimination and proper diet should likewise receive consideration.

Dixie Building.

BACTERIOLOGICAL OBSERVATIONS IN ACUTE MENINGITIS.*

By AUBREY H. STRAUS, Richmond, Va.

There is probably no disease in which a rapid and accurate bacteriological diagnosis is of as vital importance to the patient as in acute meningitis. Nor is there any disease in which the full use of our available knowledge is perhaps more often omitted. The reason for this seems to be a feeling on the part of a great many physicians that most meningitis where there is a cloudy spinal fluid is meningococcic and that the few cases due to other organisms such as the pneumococcus, or streptococcus, are going to die anyway.

The early administration of antimeningococcic serum in all cases is undoubtedly justified, but the failure to follow this by a prompt and efficient bacteriological diagnosis is to fail to give the patient the full chance to which he is entitled.

The records for the city of Richmond show only nine deaths from meningococcic meningitis during the last five years, but fifty deaths due to other types, not including tubercular. Of the cases that have come to my attention only 22 per cent have been meningococcic. It therefore seems that the other types of meningitis likewise deserve our serious consideration. A recent article in the Public Health Reports[1] shows meningococcic meningitis to be on the increase, but this has not been felt here as yet. The types of meningitis occurring under different conditions and in different localities differ widely as illustrated by the following table:

Causative Organism	Army Laboratory No.1 Neufchateau, France May, 1918, to Jan., 1919		State and City Laboratory Richmond, Va. June, 1920, to June, 1928	
Meningococcus		39		10*
Influenza bacillus		1		10
Pneumococcus		5		17
Type I	3		6	
Type II	0		1	
Type III	0		1	
Type IV	1		9	
Undetermined	1		0	
Streptococci		1		7
Hemolytic			5	
Non-hemolytic			2	
Staphylococcus Aureus†		1		1
Total		47		45

*Four of these were specimens received by mail and showed only profuse pus, but were probably meningococcic in origin. The meningococcus rapidly autolyzes in the cold while the other organisms do not.

†These cases were both of traumatic origin.

The pneumococci, streptococci, and influenza bacilli seem to be the types of infection on which our attention here should be particularly focused. Everyone of these cases in the above table died and yet in the literature one finds a number of cases of recovery in pneumococcic meningitis and a few in streptoccic. Even assuming incorrect bacteriological findings in some cases, which the faulty methods employed would seem to make highly probable, there are nevertheless a number of recoveries reported. I shall cite only a few of these.

Litchfield[2] reports ten cases treated by Kyes serum, five of which recovered. He makes no statement as to type. He also calls attention to the fact that autopsy findings frequently show the presence of an infection in the meninges where there were no symptoms noted before death.

This observation was also made in my own army experience. In thirty-nine autopsies we found definite meningeal infection in five. These were deaths without symptoms of meningitis. One of these was pneumococcus, Type I, one streptococcus, one meningococcus, one both streptococcus and meningococcus, and one the diphtheria bacillus. In this latter case the diphtheria bacillus was also found in the lungs.

Ratnoff and Litvak[3] describe a case of pneumococcic meningitis believed to be Type III

*Read before the Richmond Academy of Medicine, Tuesday, October 23, 1928.

which they treated with injections of antipneumococcic serum and Morgenroth's optochin hydrochloride. They believed that the use of this drug greatly increased the efficacy of the serum treatment. They report complete recovery.

Simpson[4] reports a case of pneumococcic meningitis, type undetermined, treated by injections of polyvalent serum with complete recovery.

Harkavy[5] describes a cast of Type I pneumococcus infection treated with specific serum and followed by complete recovery. He also emphasizes the importance of both intraspinal and intracisternal drainage and injection.

Globus and Kasanin[6] report a case of Type IV pneumococcus with complete recovery. The treatment used consisted principally of drainage, subarachnoid drainage being emphasized. These authors also quote seven other cases of reported recoveries in pneumococcic meningitis.

Cases of recovery in streptococcic meningitis are rarer but there are some on record. One of interest was reported by Neal and Jones[7] following scarlet fever. Anti-scarlet streptococcic serum was used and the case showed prompt response with complete recovery. The case was very severe with blockage of the canal.

There seems to have been less accomplished in the treatment of meningitis due to the influenza bacilli. Schnyder and Urech[8] in a review of sixty-three cases report only six recoveries, and most of these were left with permanent defects.

In any event accurate diagnosis is always the first step in the handling of any disease. In this disease with the means of diagnosis available it seems a pity not to utilize them in every case. The laboratories themselves are partly to blame for this, by not doing better work. Mistakes are often made as I have several times personally observed. The recent report of the Public Health Service[1] states this as a fact both in this country and abroad. There is, however, no excuse for this. Any well equipped laboratory with a technician of proper training should experience no difficulty in differentiating any of the organisms apt to be found in spinal fluid.

It is not safe to rely upon staining only, even with the aid of a well made Gram stain, which unfortunately is not always available. Cultural confirmation should always be carried out, and in the case of the pneumococcus the organism should invariably be typed. This can be done within an hour in most cases by the method of Gondolf.[9] I have only had the opportunity to employ this method twice but it has given good results both times. Where this does not work, cultures should be used though they are much slower in giving results. The precipitin test frequently gives immediate results. All of these methods should be available so as to give as quick and accurate a diagnosis as possible. The one thing emphasized in the reports quoted above is the need for an immediate diagnosis.

In the case of undue prevalence of meningococcic meningitis the organisms should be typed and an effort made to get specific serum rather than the usual polyvalent serum. This was found particularly helpful in France during the winter following the Armistice.

In conclusion, I wish to urge a closer cooperation between the laboratory and the physician in handling these cases. The laboratory service should be just as available as the medical service and there should be no time lost between the spinal puncture and the laboratory examination of the fluid.

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617 *West Grace Street.*

Analyses, Selections, Etc.

FRAUDS AND QUACKERY IN MEDICINE.*

By MORRIS FISHBEIN, M. D., Chicago, Ill.

Editor, Journal American Medical Association.

Dr. Fishbein said he would speak of faith healing in its scientific aspects only. The difference between scientific medicine and faith healing he described by the parallel case of the

*Abstract of address to the profession and public at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 17, 1928.

black cat that is not in the cellar: the philosopher looks for it, but the theologian finds it.

There are three things in which every man is naturally credulous, he said: money, matrimony and medicine. Of these credulities, that in regard to medicine is the only one of which the results may be permanently harmful.

Charlatanry, he pointed out, is not peculiar to medicine but has its exponents in the law and the ministry as well. (He remarked here that certain supposed ministers were said to obtain their results by perspiration rather than by inspiration.) He described the charlatan as a man of great personal appeal who uses his personality primarily in getting results, who realizes that he does not possess the powers that he claims. Charlatanism is often connected with a "divine call."

The medicine of today, he said, rose out of the faith healing of the Jews and the Aramaic peoples and the Greeks. Hippocrates observed the tendency of sick tissues to get well. The scientific man, realizing this, says only that he did what he could and the patient got well. The charlatan says, "I cured the patient."

After the time of the great Greeks came the dark ages of medicine; then the great anatomists with their recognition of the fact that one had to know the human body.

There was no great practitioner of the art of healing by suggestion until the German, Friedrich Anton Mesmer. Then came John Graham who called himself "Servant of the Lord, O. W. L.," the initials standing for "Oh, Wonderful Love." Mrs. Mapp might be said to have been the "Bonesetter Reese" of 1784. She held sway for two years. Next appeared Bishop Berkeley and his tar water.

About this time Benjamin Franklin's discovery of electricity had its influence on medical quackery. The first great American quack was Elisha Perkins who invented the so-called metallic tractors. They were electrodes which were to be drawn downward over the body, never upward. For these he charged five dollars a set. They were sold by testimonials, the great selling agent for all forms of fraudulent medical devices. (Testimonials can be purchased, particularly for cosmetic preparations, for prices varying directly with the prestige of the testifier.)

At the time of Mesmer (c. 1800) Paris was the great center of faith healing and it was there that he built his Temple of Animal Magnetism, as mesmerism was called.

Disciples were soon found in the United States. At Belfast, Maine, Phineas Parker Quimby started the practice of mental healing.

In 1822 Mary Baker was born. She was an imaginative, spoiled child. Soon after her first marriage she developed a sort of illusion of childhood and insisted on being rocked to sleep. The first husband died in a few years. Her second husband she divorced while he was in a prison camp during the Civil War. About this time she received what she thought was a spinal injury, in falling. She heard of the faith healing of Quimby and went to him to be treated. He cured her in two treatments.

Dr. Fishbein illustrated the possibility of such a cure by the case of a girl in Hamilton, Ontario, who was supposedly suffering from paralysis, and whom Dr. Sippy, of Chicago, was called to see. He determined on examination that there was no actual paralysis and in a few minutes was able to walk out of the sickroom with the patient accompanying him. It was merely a scientific diagnosis of hysterical paralysis.

Quimby wrote a book on mind healing, of which the manuscript is still preserved and from which Mary Baker Eddy's book, "Science and Health with a Key to the Scriptures," was obviously derived. It contains all of Quimby's points. After her experience with Quimby, Mary Baker went to Boston and set herself up as a mind healer. In a few years she married her third husband and when he died, not long after, she asserted that the cause of his death was "malicious animal magnetism." Postmortem examination, however, revealed the presence of endocarditis and myocarditis. She then associated with herself a sort of general manager who lasted ten years. Meanwhile, she had become extremely wealthy through the promotion of Christian Science and when she died she left a trust fund for the propagation of her creed.

Dr. Fishbein pointed out that there are a great many things about Christian Science that need not be taken especially seriously; but that when an adult permits a child, who is not his property but his sacred trust, to strangle of diphtheria without bringing the aid which would save its life, that should be taken seriously.

It is unfortunately quite possible in this country to create permanent trusts for anti-social purposes.

In this country today there are thirty-seven systems of mind healing embracing about 10,000,000 people. The names of most of these systems are associated in some manner with the word "science."

The beginning of osteopathy occurred when Dr. Andrew Still conceived his idea of the importance of vertebrae to the human welfare. He traveled about preaching his creed in many towns but was not favorably received until he found what he called "the Athens of America," Kirksville, Missouri, in 1872.

It was only in 1879 that Pasteur offered proof that specific germs were associated with different diseases. From this date all modern medical science advanced so rapidly that it became difficult to qualify for the practice of medicine, and charlatans found it necessary to "get in through the back door." It was under these circumstances that osteopathy got its start. The osteopath of today now contends that many diseases of man arise from pressure of the bones upon the spinal nerves but also that he restores all tissues to their harmonious relationships. The osteopathic course has increased from its rude beginnings until now it requires a high school background and about four years of study.

The laws of the various states differ with respect to the rights of reputable physicians and healers of various sorts. In California the osteopath is placed on an equal footing with physicians graduated from accepted medical colleges.

Dr. Fishbein said that if the osteopath "comes in through the back door," then the chiropractor "comes in through the basement." While the man who enters your house by the back door may be presentable, the one who comes through the basement is apt to be much begrimed and to carry a crowbar. Chiropractic was invented by D. D. Palmer, a practitioner of animal magnetism. It is a sort of hybrid between osteopathy and mental healing. An osteopath said that the course in chiropractic is practically the first three weeks of the course in osteopathy. The chiropractic system is founded on the idea that all disease is caused by pressure of the bones of the spine on the spinal nerves. This particular displacement of the vertebrae they call "subluxation," a phenomenon which does not actually exist. B. J. Palmer, the son of the originator of chiropractic, and the present head of the school, is a remarkable salesman. He instituted the "meal ticket" system of collecting fees, the "nonreturnable kimona" and the "neuro-calometer." He has built up a magnificent organization. He advertises over radio station WOC at Davenport, Iowa. (Newspapers are becoming more and more particular about the type of advertising matter they will accept for their pages, but the radio has not yet reached the stage of developing ethical standards.) At his home in Davenport he has a "Garden of St. Peter" to which persons are admitted for ten cents. Here he has a large spine collection which includes among other things the spine of a boa constrictor. There is also a library which, when finally opened at the request of an investigator, was found to contain "The Ladies' Home Journal," "The Woman's Home Companion," and "True Detective Stories." B. J. Palmer is the inventor of many slogans which are used in advertising his creed.

Ten years ago the school of chiropractic flourished with 3,000 students; last November it contained about 300; it is obviously on the decline.

Albert Abrams was the greatest medical quack. He had a good medical education but perverted it to ill use. His first departure was "spondylotherapy," the idea of which was to cure by pounding the spine with a rubber-tipped hammer. At this time everyone became interested in wireless telegraphy and the development of electricity, so Abrams turned to his "electronic diagnosis and therapy." His machine consists of many intricate connections and wires to which there is no scientific order at all. The system is supported by such leaders of the "intelligentsia" as Upton Sinclair. Abrams died after four years of exploitation of this method, leaving an estate of millions of dollars. His machines were leased by him, not sold, but his courses of instruction were sold. His fortune also came from his school, his journal and many other sources. When he died there were possibly 2,000 practitioners of his system in this country, but now there are less than 100. He left a portion of his great fortune to found a college of electronic diagnosis and therapy in San Francisco. The college closed about three months ago and the

building was found to have been constructed so that it would be suitable for use as a hotel.

The two developments out of the Abrams school were the Palmer thermopile arrangement which registers when placed upon the skin (thus, supposedly, indicating the seat of the disease), called a neuro-calometer, which sold for $3500, and the Wilshire Ionaco. This instrument consists of coils of wire. The virtue claimed for it is that it will cure a patient of any chronic disease if hung around his neck. It is supposed to magnetize the iron in the blood. Dr. Fishbein likened the possibility of accomplishing such a feat to the possibility of picking up spinach with a magnet. This device is advertised over the radio station WCFL ("the voice of labor") in Chicago. It has been dubbed the "magic horse-collar."

Another quackery exisiting today is the concern in New York City which sells a system of saving hair. It offers to diagnose hair conditions by examining hairs, sent through the mail, under the microscope. The Bureau of Investigation of the American Medical Association sent for diagnosis some hairs from fur coats and from the head of a girl who was obviously not suffering from any fault of the hair, and twine dyed to look like hair. In each case was returned the diagnosis of malnutrition of the hair roots, with recommendation of treatment with their nostrum.

There are also going about now various perversions of the scientific use of diet in the prevention and control of disease. Each emphasizes its own special point, such, for instance, as never mixing proteins and carbohydrates in the digestive system, never mixing acids and alkalis, and so forth. These systems also are advertised over the radio, with such slogans as,

"The more sugar you soak, the sooner you'll croak."

"The whiter your bread, the sooner you're dead."

"Good night, sleep tight, don't let the bed-bugs bite or you'll get small pox."

There are many lights, wires and radium devices for healing, as well as numerous glandular mixtures which were evolved soon after the discovery of the efficacy of thyroxin and other glandular extracts for treatment of certain conditions.

Another creed, so-called "naturopathy," is sponsored by Bernarr McFadden, notorious publisher of "Physical Culture" magazine. Its peculiarity is the avoidance of drugs, surgeons and other aids to therapeutics which it deems "unnatural." Eugene Debs went to the sanatorium near Chicago which treats by its methods and died a victim of its ignorance, and its treatment by starvation diet.

The cults come and go. The one charlatan who should concern us greatly is the licensed physician who disgraces the good name of medicine by fraudulent practice. Such are the "plastic" or beauty surgeons, following in the wake of the splendid results attained by reconstruction surgery during the World War. The most notorious of these at the present time is H. J. Schireson, of Chicago, who, Dr. Fishbein said, has spent at least as much time in prison as in medical school.

P. T. Barnum said there is born in the United States a sucker every minute. Joseph Jastrow remarked that a crook is born every hour to take advantage of sixty suckers. The ratio is not likely to change in the future even with the birth of a great many eugenic babies.

Roentgenology

Roentgen-Ray Diagnosis

LEOPOLD JACHES, M. D., Radiologist, Mt. Sinai Hospital, New York City.

(*Continued from page* 660)

The Mediastinum.—Of the pathologic conditions occurring in the mediastinum, an enlarged substernal thyroid, a persistent thymus, enlarged glands of tuberculosis or Hodgkin's disease, and tumors, are the most important. The enlarged thyroid, when it extends into the chest, will be seen as a dense mass in the paravertebral portion, compressing the trachea or displacing it to one side. The persistent thymus appears as a broad band above the heart. One should be on guard, however, not to mistake the broadening of the mediastinal shadow, which occurs during expiration or while the crying child holds its breath, for an enlarged thymus. Tuberculous mediastinal glands are generally denser and sometimes partially calcified. The glands of Hodgkin's disease are, as a rule, more lobulated. Frequently it is impossible, roentgenologically, to differentiate between these conditions.

Tumors of the mediastinum are more frequently malignant than benign. Of the latter,

cysts are seen most often: of the former, lymphosarcomas. Differentiation between the two varieties is often difficult: as a point of distinction it may be stated that the malignant types have a tendency to be lobulated.

Aneurysm.—Of equal difficulty and importance is the differentiation between tumor and aortic aneurysm. Fluoroscopy may sometimes be of assistance, as aneurysms are apt to show pulsation while tumors will not. But often transmitted pulsation of a tumor will simulate an aneurysm, or a thick-walled aneurysm will not pulsate at all. Occasionally it is possible by fluoroscopy in oblique directions to separate the tumor from the aorta and thus discover the true nature of the shadow.

Aortic aneurysm is best studied fluoroscopically. If the ascending aorta is involved there is a convex shadow to the right of the spine which becomes accentuated when the patient is observed in the second oblique position; i. e., the left side of the chest to the screen, the right toward the tube. Aneurysm of the descending aorta will show a widening of its shadow to the left and, in the first oblique position, it will be seen to encroach on the posterior mediastinum. Aneurysm of the arch is best seen postero-anteriorly as a large spherical shadow above that of the heart. In the first oblique position its encroachment on the posterior mediastinum and, if the patient swallows a barium mixture during the observation, the degree of pressure on the esophagus, if any, can be determined. In this position one can in extreme cases study the erosion of the thoracic vertebrae in this area.

Syphilitic aortitis is shown as a widening of the ascending portion just above the heart. Like aneurysm of the ascending aorta, it is best seen in the second oblique position.

In arteriosclerosis the aorta seems widened, sometimes it is tortuous, and frequently calcified plaques can be seen in the descending portion of the arch.

The Heart.—In the cardiovascular shadow the following points are to be noted: On the right side there is a curve above the diaphragm representing the right auricle; above it is a nearly straight line representing the superior vena cava; on the left side there are, from above downward, the descending portion of the aortic arch, the pulmonary artery, the left auricle (often not clearly visible), and the left ventricle.

The position of the heart and, consequently, its apparent shape are affected by the stature of the patient. In tall, thin persons in whom the diaphragm is low, it is nearly vertical and, in extreme cases, presents the so-called drop heart. In stout persons with much intra-abdominal fat, the heart is raised and rotated on its long axis and is situated more or less transversely. In unilateral elevation of the diaphragm from whatever cause, it is generally displaced to the opposite side. Deformity of the chest, such as kyphoscoliosis, also causes marked displacement of the heart.

The size of the heart, unless there is marked enlargement, is not of great importance, save for comparison at different times in the same individual. Actual change in shape, however, denotes an organic lesion.

The changes produced by valvular lesions are clearly revealed by the roentgen-ray.

In mitral insufficiency the entire cardiovascular shadow is enlarged, which is due to hypertrophy of the left auricle and of the right ventricle and to dilatation and hypertrophy of the left ventricle.

In mitral stenosis the left auricle is markedly enlarged because of hypertrophy and dilatation. The pulmonary artery may be slightly enlarged.

In aortic insufficiency the left ventricle is markedly enlarged because of the combined hypertrophy and dilatation. The enlargement is mainly to the left.

In aortic stenosis there is slight enlargement of the left ventricle owing to hypertrophy. The appearance somewhat resembles aortic insufficiency, except that the enlargement of the left ventricle is less marked.

In hypertension the hypertrophy of the left ventricle gives the heart the so-called egg-shape appearance. Frequently associated with it is atheroma of the aorta, which is shown by dilatation of the ascending portion, of the arch and of the descending portion, the latter sometimes hiding the pulmonary artery.

Of congenital heart lesions, patent ductus arteriosus has the most characteristic roentgen-ray appearance—marked enlargement of the pulmonary artery.

Pericarditis without effusion is not recognizable by the roentgen-ray. When effusion is present, especially when the quantity is large, the shadow is flask-shaped and often occupies as much space to the right of the median line

as to the left. The normal curves have disappeared and the pulsations cannot be seen. The cardiohepatic angle generally persists in about 50 per cent of the cases.

(To be continued)

Woman's Auxiliary, Medical Society of Virginia

A Message from the Auxiliary President of Pennsylvania.

For this month's message to our members, we take the liberty of quoting the following editorial by Mrs. Charles H. Smith, president of the Woman's Auxiliary to the Medical Society of Pennsylvania, which appeared in a recent number of the *Bulletin of the Woman's Auxiliary to the American Medical Association:*

"Four years of accomplishment, a growing span of inspirational background and an increasing organization makes this greeting from The Woman's Auxiliary to the Medical Society of Pennsylvania one of optimism, and a rare opportunity such as this medium presents is welcomed, that the status of our inherently puissant group may be more widely heralded.

"Generally speaking, it may be said that doctors' wives have wished for some method whereby real assistance of an entirely worthwhile sort or type might be rendered their husbands. Not a trivial desire, but a potent and entirely commendable objective. Such, therefore, is the basic purpose of Pennsylvania's Auxiliary.

"Thirty counties have perfected local organizations, and a membership of 1,540 bodes well for the state as a whole.

"It has been deemed wisest and most prudent to nurture slow development, thereby gaining in strength and momentum. The wholehearted support from believing units is the only salvation for the future of our part in a national progressive scheme. Our plan is to show merit to intelligent women, as physicians' wives are, that they themselves may appreciate the advantages and thereby render support through membership and work.

"It has been found that perfect co-ordination can best be obtained among the county organizations by suggestion and counsel from an administrative body scheduled annually in open assembly. Ideas for help and improvement are transmitted from the fountain-head of our state Medical Society since it is the background of the thought moving our being. Perfect co-operation between the doctors and women is ever present.

"A strenuous canvas for '*Hygeia*,' the health magazine, has been under way. Regular perusal of its columns tends to inculcate in each member the suggestions for greater community welfare in health and progress—indeed a logical goal for such an interested personnel.

"The Medical Benevolence Fund constitutes one of the truly worthy causes, that unfortunate physicians, for any number of reasons, may be aided in regaining their original positions. It is to be noted that the term 'charity' is wiped away, and the Fund is conducted on sound principles with the greatest degree of quietness by a committee of capable alert members from the state Medical Society.

"Therefore, the officers and efficient membership of the Woman's Auxiliary to the Medical Society of Pennsylvania feel secure, for the sound idea of its development is assured, and its future shall be one of helpfulness. With such an organization, suggestions are effective, and through wise counsel good results are obtained for Educational Health."

The Woman's Auxiliary to the Post-Graduate Medical Society of Southern Virginia

Held its regular meeting in Petersburg, November 20th, the president, Mrs. E. J. Nixon, Petersburg, presiding. Mrs. Meade Edmunds gave an excellent report as to new subscriptions secured for "*Hygeia*", and Mrs. J. Bolling Jones, chairman of the legislative committee, told of an illegitimate practitioner who advertised to give a lecture in Petersburg recently and of how the matter was handled. Mrs. F. J. Wright, organization chairman, expressed appreciation to the officers for the work accomplished during the past year.

The following officers were elected for 1929: Mrs. Herbert C. Jones, Petersburg, president; Mrs. C. C. Tucker, Blackstone, and Mrs. J. N. Elder, Hopewell, vice-presidents; Mrs. R. T. Hawks, Carson, treasurer; Mrs. W. P. Hoy, Petersburg, corresponding secretary; and Mrs. H. M. Snead, Petersburg, recording secretary.

The best of plans may go askew:
They have for me; they will for you.
—*Selected.*

Proceedings of Societies

Fauquier County Medical Society.

Dr. John L. Thornton and Dr. M. B. Hiden entertained the Fauquier County Medical Society at the residence of Dr. Thornton in Warrenton, Va., on December 27, 1928. After several exciting games of pool in Dr. Thornton's private pool room, the meeting was called to order at about 6 P. M., by the President, Dr. Richard Mason and an interesting and enthusiastic meeting was held. The following doctors were present:

Dr. John T. Sprague, Warrenton; Dr. J. R. Allen, Marshall; Dr. John L. Thornton, Warrenton; Dr. J. Frank Folk, Warrenton; Dr. George H. Davis, Warrenton; Dr. Wade C. Payne, Haymarket; Dr. Richard Mason, The Plains; Dr. W. O. Bailey, Aldie; Dr. J. E. Knight, Catlett; Dr. E. N. Lillard, Nokesville, Dr M. B. Hiden, Warrenton, and Dr. Wm. N. Hodgkin, Dentist, Warrenton.

The minutes of the last meeting were read by the Secretary, Dr. J. E. Knight, and were approved as read.

Dr. J. Frank Folk and Dr. E. N. Lillard were made members of the Society.

Dr. Hiden spoke on cancer control and the work that was being done by the American Society for the Control of Cancer. He also talked for a few minutes on the work that had been done by the local hospital and the record that it had made.

Dr. Allen made an excellent talk, full of constructive criticism in regard to the local hospital, and mentioned especially the X-ray and the advisability of having an interne.

Dr. Thornton gave a talk against having an interne and discussed with great interest what fees should be charged for hospital calls.

Dr. Sprague then spoke in favor of having an interne.

An interested discussion of this subject then ensued, Dr. Trow, Dr. Payne and Dr. Allen being among the speakers.

Dr. W. O. Bailey then spoke against an interne and in favor of this work being bone by the general practitioners, who are experienced, trained men, and not by an interne who is still being trained. A motion by Dr. Sprague to have an interne was defeated. A motion by Dr. Thornton that this Society have monthly meetings at the local hotel was defeated.

Dr. Mason made an excellent speech on deadbeats and the advisability of having a black list. This was well discussed by Dr. E. N. Lillard and Dr. J. T. Sprague.

On motion, duly seconded, a resolution was unanimously passed that the members of this Society furnish their Secretary with the names of their non-pay patients, properly listed, giving the reasons why these people could not or would not pay, that from this information the Secretary would furnish to each member the names of all the non-pay patients in that section; that this resolution be given to the local newspaper, so that the patients might know that this action had been taken. The dental surgeons were invited to co-operate by listing their non-pay patients also.

On invitation from Dr. Sprague, the Society voted unanimously to meet at his residence on the last Thursday in January.

The Society then adjourned and enjoyed a delicious supper prepared by Mrs. Thornton. Many of the members remained after supper to play pool.

The Southside Virginia Medical Association

Held an excellent meeting in Petersburg, Va., December the 11th, under the presidency of Dr. W. D. Prince, of Stony Creek. The annual election of officers resulted as folows: President, Dr. R. H. Manson, McKenney; vice-presidents, Dr. J. A. Grizzard, Drewryville, Dr. J. L. Rawls, Suffolk and Dr. E. W. Perkins, Petersburg; and Dr. R. L. Raiford, Franklin, secretary-treasurer (re-elected). Drs. E. L. Kendig, Victoria, J. E. Rawls, Suffolk, and C. S. Dodd, Petersburg, were re-elected members of the executive committee. It was decided to hold the next meeting in Farmville, on the second Tuesday in March, 1929.

The Richmond Academy of Medicine,

At its annual meeting in December, elected the following officers for 1929: Dr. Wyndham B. Blanton, president, succeeding Dr. James H. Smith; and Drs. W. B. Porter and W. H. Higgins, vice-presidents. Dr. Mark W. Peyser was re-elected secretary-treasurer for the thirty-sixth consecutive term. All officers are of Richmond, Va.

The Alexandria Medical Society,

At its meeting on December the 4th, elected the following officers for 1929: President, Dr. H. A. Latane; vice-president, Dr. R. Lee Wil-

kins; and secretary-treasurer, Dr. Peter B. Pulman (re-elected). All officers are of Alexandria.

The University of Virginia Medical Society.

In the absence of Dr. W. E. Bray, the meeting of this Society on December 3, 1928, was called to order by Dr. H. T. Marshall.

Dr. Joseph B. Graham presented the specimens from an autopsy on lobar pneumonia with complications suggesting a previous infectious jaundice. Both tissues and microprojections were given. Dr. John H. Neff discussed his methods of "Hospital Follow-Up". He exhibited some of the form letters which he sends out at regular intervals to every patient leaving the hospital from his service. He discussed the value of this "Follow-Up" to the patient and the doctor. He gets about 68 per cent of replies to his letters. Dr. C. H. Peterson discussed three cases of "Osteochondritis Dissecans", exhibiting the X-ray pictures as part of his presentation. An interesting commentary upon the subject was furnished by Dr. Voshell in whose service the cases were treated. Dr. Leroy A. Calkins gave an interesting discussion of "Some Factors Controlling Blood Loss at Delivery". This was a statistical study tabulated for the purpose of drafting curves of frequency to indicate the possible correlation between the several factors.

Officers were elected for the new year. Dr. Carl C. Speidel was chosen presiding officer, Dr. Richard Meade, secretary and Dr. Harry T. Marshall, editor.

The Truth About Medicine

In addition to the articles enumerated in our letter of October 27th, the following have been accepted:

Arlington Chemical Co.
- Western Water Hemp Pollen Extract—Arlco
- Spiny Amaranth Pollen Extract—Arlco

E. Bilhuber, Inc.
- Metrazol
  - Metrazol Ampoules, 1 c.c.
  - Metrazol Tablets

The Gilliland Laboratories, Inc.
- Rabies Vaccine—Gilliland (Semple Method)

H. A. Metz Laboratories, Inc.
- Salyrgan
  - Ampules Salyrgan Solution, 1 c.c.
  - Ampules Salyrgan Solution, 2 c.c.

E. R. Squibb & Sons
- Antipneumococcic Serum, Type I, 50 c.c. gravity container
- Antistreptococcic Serum—Squibb, 50 c.c. gravity container
- Squibb's Mint-Flavored Cod Liver Oil

NEW AND NONOFFICIAL REMEDIES

Mulford Acidophilus Bacillus Blocks.—A culture of *B. acidophilus* (Y strain), embedded in a 2 per cent agar jelly containing milk powder, lactose, d-glucose and sucrose, and marketed in the form of chocolate covered cubes, each of which contains approximately 150 billion viable organisms (*B. acidophilus*) at the time of issue. For a discussion of the actions and uses of bacillus acidophilus see Lactic Acid Producing Organisms and Preparations, New and Nonofficial Remedies, 1928, p. 228. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., November 3, 1928, p. 1375).

Phentetiothalein Sodium.—Phenoltetraiodophthalein Sodium.—Phentetiothalein sodium contains from 56 to 59 per cent of iodine. It is used for the roentgenologic examination of the gall-bladder and simultaneous test of hepatic function. Following the intravenous injection, the solution appears in the normal gall-bladder in sufficient concentration to cast a shadow to the roentgen-rays and if the liver is damaged it is retained in the blood in amounts indicative of the extent of impairment.

Iso-Iodeikon.—A brand of phentetiothalein—N. N. R. It is marketed in 2.5 Gm. ampoules. Mallinckrodt Chemical Works, St. Louis. (Jour. A. M. A., November 17, 1928, p. 1549).

Ethylhydrocupreine.—This is a synthetic derivative of cupreine and is closely related to quinine. It has the anti-malarial and anesthetic action of quinine. Toxic symptoms, however, are more liable to occur than with quinine. Clinical investigation indicates that the drug may be of value in the treatment of lobar pneumonia, if a sufficient amount can be administered sufficiently early without untoward effect. To avoid such effect, it is proposed to secure slow absorption through the administration of the free base by mouth. The drug has a definite value in the treatment of pneumococcic infections of the eye.

Optochin Base.—Optochin.—Ethylhydrocupreine.—For a discussion of the actions and uses see ethylhydrocupreine. Optochin Base is supplied in powder and in two grain tablets. Merck & Co., Inc., Rahway, N. J.

Optochin Hydrochloride.—The hydrochloride of ethylhydrocupreine. For a discussion of the actions and uses see ethylhydrocupreine. For application to the eye and instillation into the conjunctival sac, a freshly prepared 1 or 2 per cent solution is used. It is not recommended for oral administration. Merck & Co., Inc., Rahway, N. J.

Tablets Protargentum—Squibb, 4.6 grains.—Each tablet contains 4.6 grains of protargentum—Squibb (New and Nonofficial Remedies, 1928, p. 397). E. R. Squibb & Sons, New York.

Tablets Solargentum—Squibb, 4.6 grains.—Each tablet contains 4.6 grains of solargentum—Squibb (New and Nonofficial Remedies, 1928, p. 398). E. R. Squibb & Sons, New York.

Capsules Ephedrine Hydrochloride—Abbott, ¾ grain.—Each capsule contains ¾ grain of ephedrine hydrochloride—Abbott (New and Nonofficial Remedies, 1928, p. 176). Abbott Laboratories, North Chicago, Ill.

Antimeningococcus Serum Concentrated, Lilly—An antimeningococcus serum (New and Nonofficial Remedies, 1928, p. 359) refined and concentrated by the Banzhaf method. It is marketed in packages of one 1 c.c. double ended vial with apparatus for intraspinal injection. Eli Lilly & Co., Indianapolis.

Antistreptococcus Serum, Purified and Concentrated (Lilly).—A polyvalent antistreptococcus serum

(New and Nonofficial Remedies, 1928, p. 361) prepared by immunizing horses against virulent strains of the various streptococcus groups. It is marketed in packages of one 10 c.c. syringe and in packages of one 10 c.c. vial. Eli Lilly & Co., Indianapolis.

Capsules Ephedrine Sulphate—P. D. & Co.—Each capsule contains 0.025 Gm. of ephedrine sulphate—P. D. & Co. (New and Nonofficial Remedies, 1928, p. 178). Parke, Davis & Co., Detroit. (Jour. A. M. A., November 24, 1928, p. 1633).

PROPAGANDA FOR REFORM

The Vit-O-Net Again.—A report on the "Vit-O-Net Electro-Magnetic Blanket" and its method of exploitation was published in the Jour. A. M. A., March 10, 1928. The Vit-O-Net is a large electric heating pad which sells for about $100. Now an attempt is being made to lead the public and medical profession to believe that the objectionable methods of exploitation have been abandoned. Further, the public is being told that every purchaser of a Vit-O-Net will be entitled to medical service for himself and all members of his family as long as he owns one of the blankets, and that this "Health Division is under the direction of a physician, an M. D., who also is a Master of Arts and a Fellow of the American Medical Association." The promoters feature the name of Dr. F. Bache Van Nuys as the health expert, and more recently, there has been issued an elaborate booklet in which practically all of the fantastic claims previously made for Vit-O-Net are repeated. The booklet contains a picture of F. Bache Van Nuys. On September 4, 1928, the Journal received a brief note from Dr. Van Nuys stating that he had resigned from the position of Health Director of the Vit-O-Net Corporation. (Jour. A. M. A., September 8, 1928, p. 743).

Avertin.—Avertin (also referred to as E. 107) apparently is tribrom-ethyl alcohol. A recent report by Hans Killian states that it is a useful sleep-producer and sedative but that full narcosis cannot be produced with it without injuring the human organism. He holds that to introduce into the organism a molecule with properties so decidedly injurious to the vital centers in a single dose without knowledge of individual rapidity of absorption is dangerous. For more than thirty years rectal narcosis has been tried again and again, and has always been given up because, in opposition to inhalation-narcosis it is not possible either to decide on the precise dose or to interrupt the narcosis when once produced. (Jour. A. M. A., September 8, 1928, p. 745).

Distribution of Arsenicals in the Body.—Arsenical dermatoses have long been known to follow the use of certain familiar arsenical drugs. By employment of microchemical methods it was demonstrated that, after administration of such products as Fowler's solution (solution of potassium arsenite) or Donovan's solution (solution of arsenous and mercuric iodide), arsenic becomes localized in the epidermis, subpapillary layer and other ectodermal tissues. On the other hand, keratoses and pigmentation appear to be in extreme rarity following the administration of arsphenamines. A new study has demonstrated a well defined difference in localization of the arsenic following introduction of certain trivalent and pentavalent arsenicals. This may explain the pathologic processes that they produce and their therapeutic action. Arsenic in trivalent compounds has a special affinity for the vascular structures, while the pentavalent arsenicals seem to be directed toward the ectodermal structures. (Jour. A. M. A., September 15, 1928, p. 805).

Vitamin A Deficiency and Infection.—The susceptibility to infections of various kinds as affected by the adequacy or deficiency of diet with especial reference to the vitamins has attracted renewed interest. An increased susceptibility to tuberculosis has been shown in rachitic rats, a species normally possessing a marked immunity to such infection. The long delayed effects of a mild deficiency of vitamin A "no greater than may readily occur within the range of ordinary normal or adequate nutrition" have been studied on rats. At the end of the experiment, autopsies were made and the incidence of infection was determined in all the rats. In the first group this was 25 per cent; in the second, 75 per cent. The only difference between the two groups was the dietary treatment of the mother and young up to the time of weaning, one series having plenty of vitamin A, while the other was somewhat limited in its supply. The similarity in the nutrition of the rat and of man permits these results to be translated into human age relationships and suggests that a difference in incidence of infection is to be expected among children of around 10 and 12 years, resulting from difference in the way they were fed before they were three years old. (Jour. A. M. A., September 29, 1928, p. 962).

Leventis' Humanized Serum.—Dr. Leventis assumes on the basis of vaguely cited "innumerable experiments" of eighteen years' duration that it is possible to render naturally immune animals susceptible to tuberculosis by injecting the serum of a susceptible animal. Without going into the unlikelihood of this exaggerated importance of the serum alone in the complex matter of immunity, any well trained physician would wish to see carefully recorded experiments, many times repeated, and by others than the original investigator, and reported in the usual mediums of scientific exchange, before accepting this hypothesis. The United States Public Health Service has not authorized interstate sale of the Leventis serum. (Jour. A. M. A., September 29, 1928, p. 980).

Bladder Stones and Mineral Waters.—If treatment of bladder stones is interpreted as the employment of a method or methods to remove such concretions by other than operative means, it must be stated that we do not know of any mineral water or any other fluid that would be apt to dissolve vesical calculi. There is no evidence for supporting the claim that certain mineral waters have specific properties in preventing the formation of urinary concretions. (Jour. A. M. A., September 29, 1928, p. 981).

Book Announcements

Partnerships, Combinations and Antagonisms in Disease. By EDWARD C. B. IBOTSON, M. D. (Lond.), B. S., Fellow Royal Society of Medicine, London. Philadelphia. F. A. Davis Company, Publishers. 1929. Octavo of 348 pages. Illustrated. Cloth. Price $3.50 net.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Medicine, Surgery and the Various Specialties. By LEADING MEMBERS OF THE MEDICAL PROFESSION THROUGHOUT THE WORLD. Edited by HENRY W. CATTELL, A. M., M. D., Philadelphia, with Collaborators. Volume IV. Thirty-Eighth Series, 1928. Philadelphia and London. J. B. Lippincott Company. 1928. Octavo of 312 pages. Cloth.

Methods and Problems of Medical Education. (Eleventh Series). Division of Medical Education. The Rockefeller Foundation, 61 Broadway, New York, N. Y., U. S. A. 1928. 272 pages. Illustrated. Paper.

XUM

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Editorial

Infections of the Respiratory Organs.

Much has been done in preventive medicine to make one feel a bit of confidence in the ultimate eradication of certain diseases. Diphtheria, typhoid fever, and malaria may be cited to illustrate the fancy that one may entertain upon this point. But when one stands face to face with the history of epidemic waves of a disease that strike down thousands of people in a few weeks and produce a death rate of rapid and increased incidence unlike any other disease, one must feel a sense of humility and incompetence in spite of the world's present day satisfaction over the accomplishments of modern science and medicine. A memory of the appalling and withering sweep of the flaming breath of that dreadful pandemic of influenza in 1918 and in less form of 1919-1920, with the present evidence of a widespread occurrence of influenza in this country, striking with direful effect at the respirtaory organs, make for a call to the realization of the limitations of present day knowledge both as to prevention and cure of this "Captain of the men of death".

"Common or bad cold", rhinitis, sinusitis, ethmoiditis, laryngitis, trachitis, bronchitis, pneumonitis and pleuritis are the group of territorial inflammations that set up under various infective agents a train of symptoms that bring serious dangers at this period of the year. Not only in the influenzal years, but every year, the offices of medical men the nation over are frequented by patients afflicted, either directly or indirectly, as the result of an infection of the respiratory organs. Death rate and disease incidence are augmented. Prevention and method of cure, apparently largely to be found within the inherent qualities of the resistance possessed by the individual, are brought to the highest state of efficiency by obedience to certain common sense measures of living.

Epidemiology of Influenza.

Epidemics ever challenge the interest of the students of disease. The great plagues of early times, and the widespread sweeping movements of contagious diseases of recent years, give a big slant upon the nature and characteristics of maladies of an infectious origin. A certain control of the movement of the diseases has been brought about, in part, by a historic study of these big epidemics. But the epidemiological study of influenza has as yet not revealed sufficient data to make sure of the origin and nature of the cause of the disease or its actual methods of propagation over civilized communities with such astounding rapidity and virulence.

Influenza has shown pandemic characteristics that have betwildered scientific inquiry. From apparently far-flung foci, the epidemics have begun. One author suggests an endemic focus "possibly in Turkestan from which a pandemic starts". From such, with unexplained rapidity, it strikes a world stride and sweeps in vigorous virulence from country to country, from family to family, leaving in its trail death and pathology of all sorts—like the influenza of 1918—the greatest pandemic of history. To the Italians in the seventeenth century the term "influenza" must be ascribed. They thought the disease was "influenced" by the stars. The French named the disease "grippe" in 1743. Epidemics of the disease were noted in 1403. In 1507, in Paris, the law court sessions were abandoned on account of the coughing and sneezing. Epidemics of influenza were noted in 1580, 1676, 1703, 1732, and 1737.

Ancient physicians refer to symptoms in keeping with those of influenza, making widespread incidence in a short time. Epidemic manifestations of sudden invasion, rapid and extensive spread of disease are noted by the earliest medical writers.

An explosive epidemic of notable virulence occurred in 1889-1890. St. Petersburg, London, cities of Germany, Spain, Portugal, America, South America, Islands of the Sea,

China, India, West Africa, and Australia, during this period were smitten by the "flu".

Again, a serious epidemic recrudescence, but of a milder type, occurred in 1893, in 1894, again in 1895, and also milder epidemics appeared in various localities and countries in the years preceding 1900.

Influenza presents pathological changes chiefly in the respiratory tract. Invariably, in cases of influenza, infection of the respiratory tract presents itself in the form of rhinitis, laryngitis, trachitis, bronchitis, and broncho-pneumonia. In grave cases complications of broncho-pneumonia are found. What is known as B. influenza, admixed hemolytic streptococci and pneumococci, and other pyogenic organisms, are found in fatal cases and in a considerable number of non-fatal cases.

The picture of broncho-pneumonia is not easy to draw in a running comment of this sort. The bronchi are engorged; there is congestion and extravasation of blood in the mucosa; pneumonic areas are found in discrete or coalesced forms; hemorrhagic areas are found in fatal cases.

In early and late stages pathologic changes may involve an entire lobe and the lungs throughout may be filled with exudative material.

The Invasion of "Flu".

The clinical entry of the disease is sudden. The "period of incubation" is from a few hours to a few days. Susceptibility, or "powers of resistance", or general conditions surrounding the exposed individual, causes a variability in the symptom-display. It is as important to recognize atypical as typical symptoms. Prodromes, in face of an epidemic, of sudden malaise, fatigue, attacks of sneezing, scratchy-throat, hoarseness, itching eyes and frontal headaches, with backache and pains throughout the body, should always be treated with comprehension of the significance of such symptoms and an evaluation of the tremendous possibilities that follow upon failure to corral for the body early, every "ounce" of body-resistance possible. Prostration, fever, chilliness, headache, dry, harsh coughing, with physical signs of bronchitis, may soon ensue with a long train of possible complications about the accessory sinuses; affections of the kidney, heart, pleurae, lungs and elsewhere.

Broncho-pneumonia is the most immediately serious condition to be met in the clinical evolution of this infection of the respiratory tract. In some patients broncho-pneumonia may appear very early; in others it may follow from neglected treatment or carelessness in the method of treating primary symptoms. Sputum tinged with blood, diffuse rales, coarse and fine, may be noted. Here fine and crepitant, there course and movable, rales may be traced over the chest. One may feel that there are here and there small areas of consolidation from the areas of distinct crepitant rales found. There may be pleural pains associated.

Cyanosis is an ugly symptom, not so common in this epidemic, but extremely common in the epidemic of 1918. Cyanosis was in this epidemic an ominous sign and marked the course of the disease in many of the fatal cases long before death. Cyanotic patients rarely recover.

As the disease progresses and recurs during the coming winter months of January, February and March, we may expect to see more and more cyanotic patients with a higher rate of fatality.

Convalescence

This period of the disease demands closest attention. Following the fever, weakness and prostration are marked. Few patients are willing to remain under treatment through slow convalescence or recovery. Complications of the "flu" light up afterwards because of carelessness during this important period. Before the body is able to withstand re-infection, influenzal patients expose themselves or fail to prevent further inroads of the disease elsewhere in the body.

Hence, complications, such as lobar pneumonia, pulmonary abscess, gangrene, pleurisy, and empyema may appear. Complications may appear in the heart, as pericarditis, endocarditis, myocarditis, and functional disturbances as arrhythmias. Kidney disease may set up following "flu"; pregnancy in dangerous with influenza; nervous disorders appear as complications.

As to treatment there is no specific. As the specific cause is not known and as the epidemic movement of the disease over wide areas of the earth is as yet unexplained upon any proven etiologic basis, the treatment remains largely one of resort to rest in bed, good nursing and wise advice as to the management

of symptoms. For neuro-muscular pains, fever, cough, and like symptoms, physicians resort to well known remedies. To meet complications of pneumonia and heart complications, the therapeutist has to be on the alert, bringing to bear on such cases the experience of individual practice.

Whether digitalis, oxygen, vaccine, serum, diathermy: these are among questions of therapy to be considered as cases and conditions arise.

A. G. B. JR.

The Teaching of Obstetrics.

We hear a lot now-a-days about the high maternal mortality, but very little about the teaching of obstetrics. The high maternal mortality, it seems, has been with us always. Formerly, we complacently ascribed it to the midwife who has also been with us always, but each year there are fewer deliveries by midwives and yet the rate stays unchanged. Such studies as those of Julius Levy (*Am. J. Pub. Health*, 13:88, Feb. 23), who tabulated the maternal deaths and the percentage of deliveries by midwives in the various counties of New Jersey, show little correlation between the two.

In the registration area of the United States, one woman out of 135 dies having a baby. L. L. Dublin, statistician, states (Mortality Incident to Child-bearing, *Am. J. Ob.* 78:28, July, '18) that, with proper obstetrics, the figures should be one in every 500 and this ideal is attained in the great maternities of the country. The difference of five dead mothers in every 1,000 deliveries is the difference between more or less traditional or folklore obstetrics, if you please, and that practiced by adequately trained persons.

It is inspiring, therefore, when the president of an international special society takes up the question of the teaching of obstetrics in his presidential address. Palmer Findley's masterly discourse (*Am. J. Obst. & Gynec.* 16:11, Nov. '28) should be read by everyone interested in medical education or in public health. I am not so sure but that it should be put into the hands of all public-spirited persons regardless of their calling. Dr. Findley traces the development of obstetric pedagogy which is of surprisingly recent date. For instance, Dr. James P. White who held the first obstetric clinic in this country in 1850, at the University of Buffalo, was libeled by the press and bitterly attacked by members of his own profession.

From the replies to more than 400 letters of inquiry sent to the deans of the various medical schools, Dr. Findley has given us an unique survey of the present day teaching of obstetrics all over the world. This varies from the very satisfactory clinical teaching of obstetrics in Sweden, with its maternal mortality of 2.58 per 1,000 live births to that of the United States with its 7.99 rate. In Sweden "the students in the University of Lund devote four months to clinical obstetrics, living and breathing the atmosphere of the clinic. Each student will have personally conducted an average number of thirty-eight to forty labors, one to two forceps, and one to two abortions. Some will have performed versions, manual delivery of the placenta and like maneuvers."

Contrast this with the state of affairs in the United States, as described by Dr. Fred C. Zapffe, Secretary of the Association of American Medical Colleges, "During an experience of twenty-three years of visiting medical schools, I have gained certain impressions that have never varied, but have multiplied. As a rule, obstetrics and gynecology are in one department of which a gynecologist is the head, as there are only a few obstetricians and, even if there were more, the gynecologist would insist on the headship for the department, or a separate department. Therefore, the bulk of the hours allotted to the combined department are taken by the gynecologist. I find that in many schools there is very inadequate provision made for training students in actual delivery work."

Is the medical profession going to remedy this defect or is it going to sit still until the public gets wise and takes the matter into its own hands?

M. P. R.

Syphilis.

It is noteworthy that the master clinician, author and teacher, Sir William Osler, produced as his swan song an oration entitled, "The Campaign Against Syphilis." In this, his ability to present accurate scientific data in classical form is again demonstrated. Osler during his career showed his ability to select major medical problems to which to devote his time and attention.

The subdivisions of his oration have the fol-

lowing headings: "The Conquest of the Great Infections", "Statistical Data", "Reduction of Typhoid Fever", "Gonorrhea and Race Conservation", "Syphilis", "Stillbirths", "Infantile Mortality", "Widespread Manifestations of the Spirochaete"", "Examination of Registrar-General's Mortality Return", "Postmortem Evidence", "The Wassermann Reaction", "The Growth of Campaign Against Venereal Diseases", "Legislative Action", "Establishment of Venereal Clinics", "Education of the Public", "Unqualified Treatment, Notification, Compulsory Treatment", and "The Outlook". There is a complete presentation of evidence which shows the widespread distribution of syphilis, its seriousness and the possibilities of its eradication. Osler places it among the first causes of mortality.

He states that now the public is awake to the necessity of a campaign aginst this plague of mankind. The State is now ready to intervene and this adds ground for hope. The people themselves have had a change of heart, "The sinner is to receive Christian treatment."

The Virginia State Board of Health should be commended for issuing this final endeavor of Dr. Osler's in abstract form and distributing it to the entire medical profession of this State. This pamphlet is worthy of the attention of every physician in this State and Country.

At the last meeting of the State Medical Society at Danville, there was organized a society whose purpose it is to promote every phase of the campaign against venereal diseases. The initial meeting was small in numbers, but it is hoped that this organization will meet with the whole-hearted energetic support of the medical profession of this Commonwealth.

News Notes

Influenza Prevalence.

Reports in public health bulletins indicate a widespread prevalence of influenza, the New England States perhaps having suffered less to this time than other parts of the country. In all states the epidemic appears to have been of milder form and with a lower mortality rate than in 1918, though doctors are urged to warn their patients against the danger of relapses. During the two weeks ending December 24th, approximately 70,000 cases in Virginia had been under the care of doctors. It is stated that the epidemic apparently reaches its height in a community in about two or three weeks and lasts about five weeks, and from 15 to 40 per cent of the population becomes affected.

The Southern Surgical Association,

At its forty-first annual meeting at White Sulphur Springs, W. Va., the middle of December, elected Dr. Lucius E. Burch, Nashville, Tenn., president. Drs. Albert O. Singleton, Galveston, Texas, and Fred W. Bailey, St. Louis, Mo., were elected vice-presidents, and Dr. R. L. Payne, Norfolk, Va., was re-elected secretary. Savannah, Ga., was chosen for the 1929 place of meeting.

News for Founder's Day at Medical College of Virginia.

Dr. Joseph L. Miller, donor of a rare collection of medical books to the Richmond Academy of Medicine, will speak on "Physicians of the Old South, Their Character and Education" on founder's day at the Medical College of Virginia, Richmond, February 15, 1929. On the same occasion Dr. Charles R. Robins, professor of gynecology at the Medical College of Virginia, will read a paper on the beginnings in nursing education in the modern sense at the Medical College of Virginia.

Cabaniss Hall, the new dormitory for women, chiefly of the school of nursing at the Medical College of Virginia, will be formally opened on founder's day, February 15, 1929. This building accommodates 134 persons, one-half in single and one-half in double rooms with hot and cold water in each room. Certain recreational and teaching facilities as well as a large dining room, kitchen, and ice making plant are provided for in this building.

Medical and Pharmaceutical Co-operation.

Perhaps one of the outstanding reasons for the progress in the scientific development of new products has been the spirit of co-operation which has existed between the medical profession and the pharmaceutical industry.

By this close co-operation medical science has contributed to pharmaceutical progress and the manufacturing pharmacists of the country in turn have made a definite contribution toward the development of new medicinal products.

On Wednesday, December 5th, the officials and members of the medical, pharmaceutical

XUM

and allied professions of Lafayette, Indiana, were addressed by Dr. Charles E. Vanderkleed, Chairman of the Contact Committee of the American Pharmaceutical Manufacturers' Association.

The subject of Dr. Vanderkleed's address was "Improvement in the Quality of American Drug Products due to Co-operation in the Industry". It is interesting to see the representatives of the several allied professions making arrangements for a periodical study of mutual interests of professional nature with a view to increasing mutual usefulness.

It is only through medical and pharmaceutical co-operation that the greatest advances can be made in conquering disease and improving the health of the American people.

The Richmond Ophthalmological and Oto-Laryngological Society

Held its regular meeting on December the 10th, Dr. R. E. Mitchell, president presiding. Dr. F. H. Lee was at his accustomed place as secretary. Papers were presented by Dr. Mitchell and by Dr. Dean B. Cole, invited guest. The following officers were elected for the ensuing year: President, Dr. E. T. Gatewood; vice-president, Dr. E. U. Wallerstein; secretary, Dr. William R. Weisiger. Meetings are held monthly.

Dr. Elizabeth Holt Edmunds

Has located in Richmond, with residence and offices at 204 East Franklin Street, and will be engaged in the general practice of medicine. Dr. Edmunds is a member of the class of '25, University of Virginia, Department of Medicine. Since graduating, she has taken special work in obstetrics and spent the past year as resident on the Tuberculosis Service at Bellevue Hospital, New York City.

Dr. I. J. Haynes,

Recently of New Hope, Va., spent the holidays with his family at their home in Homestead, Florida.

Dr. C. R. Hoskins, Jr.,

Of the class of '27, Medical College of Virginia, now engaged in the practice of medicine at Brewton, Alabama, visited relatives and friends in Virginia during the holidays.

Dr. W. T. Potter,

After spending some months as a patient at the New York Orthopaedic Hospital at White Plains, N. Y., has returned to his home in Norfolk, Va.

Pollen in Demand for Treating Hay-Fever Patients.

The United States Department of Agriculture calls attention to the "increasing demand for wind-borne pollen" for making extracts with which to treat hay-fever patients. Various methods of collecting pollen have been tried but they have not always proved entirely satisfactory for providing pollen in quantity and of acceptable purity. Improvements in such methods have been developed by the department which seem to adapt them to all requirements. Pollen in usable quantities was collected from more than forty different plants in the District of Columbia and vicinity in the course of investigations reported in a new publication prepared by James W. Kelly, of the Office of Drug, Poisonous, and Oil Plants, of the Bureau of Plant Industry, in which there are illustrations of the apparatus required and a full discussion of the methods employed.

A copy of this Circular No. 46-C, "Methods of Collecting and Peserving Pollen for Use in the Treatment of Hay-Fever," will be found of value and interest to prospective pollen collectors and may be obtained by writing to the United States Department of Agriculture, Washington, D. C.

Does Education Pay?

Education pays, not only in a richer life but in money returns. An investigation of the earnings of nearly 5,000 people in all parts of the United States showed that the average incomes of the more highly educated were greater at each stage of life, and that advance in income came to an end earlier for the less educated groups—at fifty years of age, for those with common-school education and at fifty-five for those with high school training, while it did not come to an end for college-trained men until the early sixty's.

The Women Physicians of the Southern Medical Association

Held their fourteenth annual meeting November 13th, at the Woman's Club, Asheville, N. C.

This organization was started at the Southern Medical Association Convention in Lexington, Ky., just fifteen years ago and has as its object the fostering of a spirit of comradeship among the women who are members of this, the second largest medical organization in the country.

A discussion of the needs of medical women throughout the South resulted in the decision to dedicate the funds at present in the treasury as a nucleus for a student loan fund for the use of young southern women who are struggling for a medical education.

It was further decided to unite all efforts to obtain the affiliation of every medical woman who is now a member of the Southern Medical Association and also to bring in for membership in the parent organization, those women in our territory who are eligible.

The officers elected for the ensuing year are: Dr. Louise M. Ingersoll, Asheville, N. C., Chairman; Dr. Marjorie Lord, Montreat, N. C., Vice-Chairman; Dr. Mary B. Baughman, Richmond, Va., Secretary-Treasurer.

The meeting was followed by a banquet at the Woman's Club, to which all medical women attending the Southern Medical Convention were invited.

The physicians attending the banquet were: Drs. Annie Alexander, Charlotte, N. C.; Clara B. Barrett, Atlanta, Ga.; Mary B. Baughman, Richmond, Va.; Jane B. Guignard, Columbia, S. C.; Louise M. Ingersoll, Asheville, N. C.; May Farinholdt Jones, Sanatorium, Miss.; Eva Locke, White Plains, N. C.; Marjorie Lord, Montreat, N. C.; Caroline McNairy, Lenoir, N. C.; Caroline C. Sherrill, White Rock, N. C.; Edna S. Valentine, Columbia, S. C. and Edythe Welbourne, Columbia, S. C.

Dr. Baughman gave a brief sketch of the formation of the organization.

Dr. Alexander, who was the first woman physician in North Carolina, gave a most interesting account of her early experiences. The daughter of a physician, she had a scientific background, but even with that the verbal examination which the medical student of forty years ago was required to pass before receiving a license to practice must have been a most trying ordeal. The place which Dr. Alexander has made for herself in the estimation of her medical confreres was manifested in a practical way a few years ago, when she was elected president of her county society.

Dr. Guignard, the last speaker, told of some of the problems facing the woman in independent practice, and gave some very amusing incidences.

The Tri-State Medical Association of the Carolinas and Virginia

Will hold its thirty-first annual meeting at Greensboro, N. C., February the 19th and 20th, under the presidency of Dr. James K. Hall, of Richmond, Va. An excellent program is being arranged and a pleasant and interesting meeting is in store for those doctors who can attend. Headquarters will be at the O. Henry Hotel.

Physical Therapy Department at N. Y. Polyclinic.

The New York Polyclinic Medical School and Hospital, 341-353 West Fiftieth Street, New York City, has opened its new Physical Therapy Department in its main building. This department will serve for teaching, research and for the treatment of both in- and out-patients, and is under the direction of Dr. Richard Kovacs, Clinical Professor of Physical Therapy.

The Seaboard Medical Association of Virginia and North Carolina

Held its annual meeting at Washington, N. C., December 4th-6th, under the presidency of Dr. D. T. Tayloe, Jr., of that city. There were a number of interesting papers by members and several invited guests. A quail hunt and ducking party were arranged for members who could enjoy them after the meeting.

Newport News, Va., was selected for the 1929 meeting, which is to be held December 3rd, 4th, 5th. The following officers were elected: President, Dr. Robert A. Davis, Newport News, Va.; vice-presidents, Dr. Stuart Mann, Moyock, N. C., Dr. James A. Grizzard, Drewryville, Va., Dr. W. I. Wooten, Greenville, N. C., and Dr. Robert Matthews, Norfolk, Va.; treasurer, Dr. A. M. Burfoot, Fentress, Va., and seecretary, Dr. Clarence Porter Jones, Newport News, Va. Both the latter officers were re-elected.

The American Social Hygiene Association

Is to hold its annual meeting in New York City, January 18th and 19th. Headquarters of this Association are at 370 Seventh Avenue, New York, N. Y.

Infant Mortality and Birth Rates in England and Wales in 1927.

England and Wales in 1927 had an infant mortality rate of 70 per 1,000 live births, the same as the rate for 1926 and only one point higher than the lowest recorded rate—69 in 1923. The death rate for legitimate infants was 67, while for children born out of wedlock it was 120. The birth rate for 1927 was the

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lowest on record, 16.6 per 1,000 population, the lowest previous rate being 17.7 in 1918.

In the birth-registration area of the United States the infant mortality rate for 1927 was 64.6. The birth rate in 1927 for the same area was 20.6 per 1,000 (estimated) population.

How Many Deafened Children?

Ten per cent of the school population of the United States, or about 3,000,000 children, have measurable defects of hearing, reports the Joint Committee on Health Problems in Education. The committee has recommended, among other things, a uniform law in all States and cities requiring an annual examination of the hearing of school children as a part of the general annual health examination, emphasis on the means of preventing deafness, and, ultimately, the opening of clinics in the schools.

Dr. Margaret Kuyk,

Richmond, Va., recently attended the meeting of the American Association for the Advancement of Science, in New York City, as one of the representatives from Westhampton College, Richmond.

The U. S. Civil Service Commission,

Washington, D. C., announces open competitive examinations for toxicologist, associate toxicologist, and assistant toxicologist, applications for these positions to be on file with the Commission, in Washington, not later than January 23, and for physiotherapy aide, applications to be on file with the Commission not later than February 5, 1929.

Married.

Dr. Edward Wherry Gray, Richmond, Va., and Miss Eva Lee Corron, Front Royal, Va., December 15th.

Dr. Harry Walker of the class of '26, Medical College of Virginia, and Miss Pamelia Gary, of Richmond, Va., December the 8th, in New York City. Dr. Walker is director of the Southampton County Health Unit, with headquarters at Courtland, Va.

Dr. Benjamin Herman Bailey, of Sandston, Richmond, Va., member of the class of '26, Medical College of Virginia, and Miss Frances Rives Adcock, Orlando, Fla., December 28th.

Dr. John Bolling Vaiden, Jr., Highland Springs, Va., and Miss Lottie May Osborne, Elko, Va., December 1st.

Dr. William Lauch Hughes, Jackson, Miss., and Miss Zella Hume Harris, Charlottesville, Va., December 8th. Dr. Hughes graduated from the University of Virginia, Department of Medicine, in 1926.

Dr. Charles Lee Baker, Augusta, Ga., of the class of '97, University of Virginia, Department of Medicine, and Miss Blanche Coghill, Bowling Green, Va., December 27th.

Dr. William Edwin Dickerson, Princeton, W. Va., and Miss Norma Arline Bird, of Rock, September 22nd. Dr. Dickerson is an alumnus of the Medical College of Virginia in the class of '22, later interning at the Retreat for the Sick, Richmond, Va.

Dr. R. M. Wiley,

For some time of Salem, Va., is now located at Burkeville, Va., where he is first assistant physician to the Piedmont Sanatorium.

Rest Homes for Young Workers in Austria.

Austria's welfare bureau for young workers has opened six homes where working children whose health is below par may enjoy vacations in the country at nominal expense. The average vacation period is four weeks. Proper food and outdoor exercise and recreation are provided under the supervision of physicians. The cost of these homes is met by sickness-insurance funds, appropriations by the National and local governments, and the fees paid by the young vacationists. During the ten years the homes have been open more than 75,000 young workers have been cared for.

Who Are the Victims of Pellagra?

Children two to fifteen years of age whose families have too small incomes to give them enough of the right kind of food—these are the favorite victims of pellagra, says the report of the U. S. Public Health Service on the findings of the recent study of endemic pellagra in certain mill villages of South Carolina. Sanitary conditions did not seem to have any consistent influence on the prevalence of the disease, but its fluctuations from year to year appear to have been bound up with fluctuations in economic conditions.

Dr. George H. Preston,

For a couple of years connected with the psychiatric department of the Children's Memorial Clinic, Richmond, Va., who moved to Baltimore about a year ago, has resigned his position as executive secretary of the Mental Hygiene Society of Maryland so as to devote his time to the office of state commissioner of mental hygiene.

Principal Causes of Death.

The Department of Commerce announces that 1,236,949 deaths occurred in 1927 within the death registration area of continental United States, representing a death rate of 11.4 per 1,000 population—the lowest rate since 1900. This area in 1927 comprised 42 states, the District of Columbia and 21 cities in non-registration states.

The principal decreases in death rates in 1927 were from pneumonia, influenza, tuberculosis, diarrhea and enteritis, nephritis, measles, and diseases of the heart. There was an increase from 18 to 20 per 100,000 in 1927 in the death rate from automobile accidents.

Dr. S. E. Hughes, Jr.,

Danville, Va., is temporarily serving as assistant resident physician to Iola Sanatorium, Rochester, N. Y. In May, he will go to Saranac Lake, N. Y., to attend the Trudeau School of Tuberculosis.

Diphtheria—Its Prevention and Treatment.

About three-fifths of the victims of the scourge of diphtheria are children under 5 years of age, and most of the other victims are children under 10, says Dr. Walter W. Lee, of the Indiana State Board of Health in the *American Journal of Public Health* for November. Therefore, immunization work in diphtheria should be concentrated on children under 10, and especially on children of preschool age. The results of extensive immunization of the child population in the few cities which have carried out such a program indicate that the disease may be controlled, or even eliminated, by that method, says the author.

In regard to the failure of antitoxin treatment to prevent death after diphtheria has developed. Dr. Lee thinks it due in most cases to delayed or improper administration. A study of 800 deaths from the disease in Indiana and New York showed that in 40 per cent of the cases the physician was not called until three days after the onset, in 35 per cent the antitoxin was not given on the physician's first visit, in 35 per cent it was incorrectly administered, and in 10 per cent it was not used at all.

Dr. William T. Green,

Recently of Norfolk, Va., announces that he has located at Cape Charles, Va., where he limits his practice to diseases of the ear, nose and throat. His residence is at Nassawadox, Va.

Dr. Waverly R. Payne,

Newport News, Va., has received the appointment of resident surgeon in the department of obstetrics and gynecology at the Jersey City Hospital, N. J., for a year, and entered upon his duties there on January the 1st.

Dr. J. T. Daves,

Danville, Va., had a narrow escape, early in December, at Memorial Hospital, that city, when he was knocked senseless by a highly charged wire. He was in the X-ray department when his forehead came in contact with a hanging wire and he was hurled to the ground. He was badly shaken and sustained a scalp burn.

Dr. W. G. Suiter,

Weldon, N. C., has been elected president of the Kiwanis Club of that city for 1929.

Richmond Dental Society.

At the annual meeting of this society in Richmond, Va., December the 20th, Dr. Guy Harrison was elected president, succeeding Dr. John Bell Williams, business manager of McGuire Clinic, this city. Dr. Harrison is the dental member of the Virginia State Board of Health and a member of the Medical Society of Virginia.

As a tribute for his activities in the profession and his recent election as vice-president of the American Dental Association, Dr. Harry Bear was presented a silver vase by the Society.

The following suggestions by the retiring president, Dr. Williams, were adopted: That the Society's scholarship in the College of William and Mary be named the J. A. C. Hoggan memorial scholarship, and that a similar scholarship of the Society be named in honor of the late Dr. Montelle B. Rudd.

Dr. R. H. Bruni was re-elected secretary-treasurer of the Society.

Dr. R. D. Tucker,

Powhatan, Va., who has been suffering with a broken arm and a bad cold, is reported as much better.

Tear Gas Used in New Fumigation Method.

In connection with the prevention of the introduction of quarantinable diseases into the United States, the Public Health Service maintains maritime quarantine stations at all the principal seaports in the United States and its possessions through which all ships from

foreign ports must pass prior to entering the port. When ships arrive from foreign ports where quarantinable diseases exist they usually are required to undergo fumigation for the destruction of rodents and insects which might convey infection.

In order to improve the efficacy of fumigation and to reduce the amount of ship's time required for proper fumigation, the Public Health Service is constantly devising new and improved methods in fumigation procedure.

A recent report issued by the Public Health Service deals with the latest experiments made in connection with the use of the poisonous cyanogen products in the fumigation of vessels. This report accentuates the advisability of using cyanogen products which include a sufficient amount of tear gas to serve as a warning agent.

Free Transport for Juvenile Immigrants to Canada.

The British and Canadian Governments have raised from 17 to 19 the age limit of boys who may be granted free transporation to Canada to take up farm work, and of boys and girls who go to Canada as members of families approved for farm work.

Dr. E. P. Tompkins,

Lexington, Va., has been elected one of the directors of the Kiwanis Club, of that city, for the ensuing year.

Side Streets as Emergency Playgrounds.

Chelsea, Mass., badly needed a new playground but hadn't the money to buy the site, so the park department bought portable swings, slides, seesaws, and a wooden platform for dancing and placed them in side streets during the daytime, storing them away at night.

The Annual Report of the Surgeon General of the U. S. Public Healtth Service,

For the fiscal year 1928, tells of an immense amount of work done by the Service that year. It is stated that health conditions were generally favorable throughout the world during the fiscal year 1928. No pandemic outbreaks of any disease occurred and no country with a modern public health organization was affected by the spread of any of the pestilences. Cholera was more prevalent in India than for the preceding eight years and yellow fever reappeared in west Africa in June, 1928, after several months' absence. The United States reported more cases of smallpox during the year than any other country in the world from which reports were received except India, which testifies to the neglect of our people to utilize vaccination.

Dr. Herbert C. Neblett,

Of the class of '14, Medical College of Virginia, has opened offices in Charlotte, N. C., for the practice of ophthalmology. As a major in the Medical Corps of the U. S. Army, he was recently stationed at the U. S. Military Academy at West Point, N. Y.

How Important is the "Common Cold"?

The New Haven Department of Health reports that over 40,000 school days were lost last year by a total of approximately 7,000 children who were out for periods of three days or more because they had colds.

On Staff of Gill Memorial Hospital.

Dr. John I. Chorlog, of the University of Wisconsin, in the class of '27, has recently become a member of the medical staff of the Gill Memorial Hospital, Roanoke, Va. Dr. Chorlog recently served a general internship at the Chesapeake and Ohio Hospital, Clifton Forge, Va., and took hospital training in Chicago before accepting the position in Roanoke.

Dr. John K. Shumate,

Of the class of '21, Medical College of Virginia, who has recently been connected with the medical staff of the Nopeming Sanatorium, Nopeming, Minn., has moved to Pontiac, Ill., where he has accepted the position of Medical Director and Superintendent of the Livingston County Sanatorium.

Dr. Newbill Honored.

Dr. W. J. Newbill, of Irvington, Va., was honored at dinner on New Year's day by a number of friends and relatives, the occasion being his eighty-second birthday. Music and speeches added to the pleasure of this event.

Chile's Campaign for Sanitary Education.

Nearly 4,000 Chilean teachers are enrolled in correspondence courses in school hygiene given by the Government bureau of health education. The bureau is also giving lectures for teachers, instruction in infant care for midwives, and lessons in child care for Little Mothers' Leagues, and has organized mothers' clubs for the teaching of child care.

The Medical Society of the District of Columbia

Elected the following officers to serve from January 1 to July 1, 1929: Dr. Harry Hyland

Kerr, president; Dr. Wm. H. Hough and Dr. H. Gladys Kain, vice-presidents; and Dr. Coursen B. Conklin (re-elected) secretary-treasurer. Names of the following section chairmen have also been announced: Dr. Clapham P. King of the Section on Internal Medicine; Dr. Tomas Cajigas of the Section on Pathology and Laboratory Medicine; and Dr. Edmund Horgan of the Section on Surgery.

Dr. James K. Gray

Recently resigned as physician in charge of the Davis Clinic, Marion, Va., a hospital for the care of mentally disabled world war veterans, and has moved to Thurmont, Maryland, where he is engaged in the general practice of medicine.

Dr. T. Duckett Jones,

Now at the Good Samaritan Hospital, Boston, Mass., spent the holidays with friends and relatives in Virginia. In addition to his work at the hospital, Dr. Jones is doing private consultation work in Boston and research work in the Harvard Medical School.

Dr. Victor C. Vaughan,

Former dean of the Medical School of the University of Michigan, has moved his permanent home from Detroit, Mich., to Richmond, Va., where he has selected a home near his son's, Dr. Warren T. Vaughan.

Dr. W. O. Bailey

Has returned to his home in Leesburg, Va., after spending several months abroad in post-graduate study in Vienna and Budapest.

Dr. Edward Francis,

Of the U. S. Public Healh Service and well known for his work on tularemia, recently contracted undulant fever while conducting experiments in the Hygienic Laboratory and was confined to the hospital for some time.

Dr. A. L. Winfield,

Richmond, Va., was painfully hurt in an automobile accident, shortly before Christmas, and was in the hospital for treatment for a time.

Dr. D. Hunter Marrow,

Union Level, Va., has gone to Florida, as is his custom, and will spend the winter months at Daytona Beach.

Dr. J. B. Dalton,

After a year spent at the Hospital for the Ruptured and Crippled in New York City, has returned to his home at 1100 West Franklin Street, Richmond, Va.

The Society of American Bacteriologists

Held a most successful meeting in Richmond, Va., December the 27th, 28th and 29th, under the presidency of Dr. Alice C. Evans, of the U. S. Hygienic Laboratory, Washington, D. C. There was a registered attendance of 174, and the papers presented were on a wide range of interesting subjects.

Ames, Iowa, was selected as the 1929 place of meeting and Dr. Ludvig Hektoen, of the McCormick Institute for Infectious Diseases, Chicago, was elected president. Dr. S. Bayne-Jones, of the University of Rochester, Rochester, N. Y., was elected vice-president, and Dr. James M. Sherman, of Cornell University, Ithaca, N. Y., was re-elected secretary-treasurer.

Dr. A. D. Parson,

Located at Ravn, Va., left the latter part of December for New Orleans, La., where he is taking a special course in urology. Mrs. Parsons and their young daughter, Alice Frances, accompanied him.

Annual Report of Surgeon General of U. S. Navy.

Surgeon General E. R. Stitt, of the U. S. Navy, in his annual report for the fiscal year 1928, states that "This bureau has carried on its established policy of endeavoring by every means possible to improve the character of the medical service rendered to the personnel of the Navy, to reduce the incidence of disease, and to render better the hygienic condition of living quarters of officers and men of the Navy." During the year there have been 51 new medical officers commissioned, 47 of whom are internes, while 46 have been separated from the service—31 by resignation, 12 by retirement, and 3 by death. Less sickness and resulting disability were experienced than in most recent years and the general death rate was low, though slightly higher tha nthe remarkably low rate of the preceding year.

Italy's University Courses in Maternity and Infant Care.

A four-months' course in maternity and infant care for graduates in medicine and surgery and for midwives was started in November by the University of Naples. The Italian law of 1925 provides for the establishment of such courses throughout Italy, and hereafter positions in the child-welfare institutions founded or subsidized by the National Children's

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Bureau will be given only to persons with diplomas showing satisfactory completeion of one of these courses.

For Sale—

Twenty years' established general practice in a Virginia town of 3,000 and a community of 12,000. Within 60 miles of Washington, D. C., on main line railway. Fine schools and churches. Five hard surface roads outgoing, making this an all closed car practice. Two factories in town. Collections around $7,000 a year and can be increased. Wish to give up general practice. Own half interest with another physician in a $40,000 modern office and apartment building in center of town. Building has electric elevator and steam heat and pays good income. Will sell my interest in building to physician who takes over my practice, or half of my interest, if allowed to continue office for chronic cases, with no house practice. Only good general man need apply. Address No. 139, care this journal.

Obituary Record

Dr. Archille Murat Willis.

Friends of Dr. Willis throughout this State and the whole country were shocked and grieved when they learned of his death on January the 3rd, as the result of a self-inflicted bullet wound. In the morning, Dr. Willis operated as usual and, as soon as he had finished, retired to his private office where he fired the fatal shot. It is stated that he had been greatly depressed recently and committed the act while temporarily unbalanced.

Dr. Willis was born in Alabama, December 10, 1878, and, upon completion of his academic education in that state and later in Virginia, entered the Medical College of Virginia. He graduated from that institution in 1904 and served an internship at Memorial Hospital, Richmond, later doing post-graduate work at Harvard. Upon his return to Richmond, he became associated with the late Dr. George Ben Johnston and with him, founded the Johnston-Willis Hospital in 1909. Upon Dr. Johnston's death in 1916, he became president of that institution. He was also one of the founders of the Parkview Hospital at Rocky Mount, N. C., the George Ben Johnston Memorial Hospital, at Abingdon, Va., and recently of the Community Hospital, at Nassawadox, Va. After graduation, Dr. Willis taught in various capacities at the Medical College of Virginia, becoming professor of surgery in that institution in 1922. Dr. Willis was nationally known as a surgeon and had held office in many medical associations, among which was the presidency of the Richmond Academy of Medicine which had a special meeting to act on his death. His death was a shock to the entire community where he was greatly respected and beloved.

Dr. Willis is survived by his wife who was Miss Emma Gold Hutcheson, of Rockbridge County, Va., and three children.

Dr. Charles Launcelot Minor,

Widely known tuberculosis specialist of Asheville, N. C., died at his home in that place, December the 26th. His death was unexpected as he was believed to be in comparatively good health. Dr. Minor was sixty-three years of age and a graduate in medicine from the University of Virginia in 1898. His wife and three children survive him.

Dr. Robert Hardaway Jones,

Petersburg, Va., died December the 19th, as a result of having been knocked down by an automobile. Dr. Jones graduated in medicine from the University of Maryland, in 1882, and practiced in Petersburg until he retired some years ago on account of his health. His wife and two children survive him.

Dr. Robert Armistead Deane,

Well known colored physician, of Lawrenceville, Va., died in the Petersburg Hospital, December the 9th. He was born in Richmond 38 years ago and studied medicine at Howard University, Washington, D. C., receiving his diploma in 1912. His wife and three children survive him. Dr. Deane had practiced in Lawrenceville for about twelve years and had built up a good practice and was highly respected in his community.

Dr. Walter W. Johnson,

Colored physician of Covington, Va., died December the 12th, at his home in that place. He was fifty-three years of age and graduated from Leonard Medical School, Raleigh, N. C., in 1900. He had practiced in Covington for about twenty-five years, and was a member of the Staunton, Va., colored Masonic lodge. His wife and son survive him.